An affective route to outgroup derogation. The role of group-based anger as exemplified by the triggered displaced aggression paradigm

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Gutachter

1. Junior-Prof. PD Dr. Thomas Kessler, Friedrich-Schiller-Universität Jena
2. Prof. Dr. Amélie Mummendey, Friedrich-Schiller-Universität Jena

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1 INTRODUCTION

Usually when people are sad, they don't do anything.
They just cry over their condition.
But when they get angry,
they bring about a change.

Malcolm X

The opening quote suggests that people intuitively grasp the differential impact of specific emotions on behavior. Sadness is believed to be associated with inaction, whereas anger is believed to be associated with action. Yet, the specific nature of the change achieved by this action remains unspecified. The quote suggests that anger could fuel action to change one's own situation. At the same time, bringing about a change might include action that is directed at harming others. The events on 9/11 brought about a change, yet the terrorists' proximate goal was apparently not improving their own condition but rather doing harm to whom they perceived to be their enemy – even at the expense of their own lives.

We might be tempted to disregard severe cases like the terrorist attacks as deviations from the normal range of peoples' behavioral repertoire, as defects of morally inferior people. For specific instances we cannot ascertain whether that is actually the case. In fact, we do not know for sure whether the terrorists were indeed angry. Principally, however, the realm of intergroup behavior theories extends also to quite extreme forms of negative intergroup behavior. Other examples of outgroup derogation are hate-crimes (i.e., crimes based on a person's group characteristic; see e.g., McDevitt, Levin, & Bennett, 2002), genocides, and ethnic cleansing, but also non-lethal behaviors. These comprise for instance ridiculing handicapped persons, harassing homosexuals, and debasing and rejecting obese persons. Another example is the overt mistrust and avoidance behavior Arab-looking persons face in the Western world, particularly since 9/11. Less conspicuous forms of outgroup derogation include devaluing female employees' skills, punishing immigrant children's misconduct in school harsher than similar behavior of host society children, denying bank customers to raise a credit on the basis of their skin color, or higher prosecution rates of racial minority members compared with majority members as well as severer sentences once convicted (Sidanius & Pratto, 1999, ch. 8). All listed examples share the feature, that the target's

treatment bears on its group membership rather than on its individual characteristics or its individual behavior.

Compellingly little attention has been devoted to empirical research on explicitly negative treatment based on group membership, thus far (see Struch & Schwartz, 1989, for an exception). The present thesis addresses this gap by proposing one potential mechanism underlying explicitly negative group-based treatment. Deviating from research on interpersonal aggression, the focus is on a group level. Individuals that share membership in a certain social category constitute an ingroup, all other individuals belong to an outgroup. Outside the laboratory there is usually more than just one outgroup as when the national group Germans is distinguished from Norwegians, Moroccans, Ukrainians, or Peruvians. Every individual belongs to a number of social groups. Our various affiliations with social groups can impact on how we perceive, feel, and behave in social interactions (Tajfel & Turner, 1979, 1986). The group memberships of interaction partners can likewise impinge on the reactions towards them (e.g., Bushman & Bonacci, 2004). However, only when a group membership is perceived and considered relevant to a particular interaction does it affect the person's cognitions, feelings, and actions.

Intergroup behavior, like interpersonal behavior, is subject to affective influences. Particular affective experiences, so-called group-based emotions, can be experienced on behalf of groups one belongs to (Smith, 1993, 1999). A prerequisite for the experience of group-based emotions is identification with the respective group. Sufficiently identified group members experience group-based emotions as a result of what happens to their ingroup, they do not need to be personally affected. A woman might thus become very upset if her husband narrates how in a meeting the head of the company ordered a female manager to go and get coffee while the males would further discuss the managerial issues. The wife can experience outrage because of this incident without even knowing the female manager. According to intergroup emotion theory (Smith, 1993, 1999), specific categorical group-based emotions are associated with specific action tendencies. Throughout this thesis I will argue and demonstrate empirically that group-based anger has explanatory power for explicitly negative treatment of people that belong to an outgroup. Anger is the emotion that aggression researchers as well as appraisal theorists conceptualize and empirically find to be associated with approach, moving against tendencies, or, most specifically, with aggression (e.g., Anderson & Bushman, 2002; Baron, 1971; Berkowitz, 1983; Buss, 1961; Frijda, Kuipers, & ter Schure, 1989; Geen, 1990; Mackie, Devos, & Smith, 2000; Yzerbyt, Dumont,

Wigboldus, & Gordijn, 2003). However, there is no exclusive relationship. Anger can lead to various behavioral responses and aggression can occur without the experience of anger (e.g., Averill, 1983).

The research paradigm employed throughout this thesis is derived from triggered displaced aggression theory (Miller, Pedersen, Earleywine, & Pollock, 2003; Pedersen, Gonzales, & Miller, 2000). It addresses those incidences where the outgroup becomes the target of negative behavior after a minor transgression while the aggressor has been previously provoked by something or someone else. An initial strong provocation and a subsequent comparatively mild provocation interactively produce an escalated response to the second provocation. Explicitly negative group-based treatment is not assumed to be restricted to such conditions, yet this operationalization allowed investigation of the underlying mechanisms. Moreover, results from a longitudinal study conducted within the context of the German re-unification (Kessler & Mummendey, 2001) fit a triggered displaced aggression explanation, thus hinting at the ecological validity of the construct. Xenophobia expressed by East Germans that self-categorized as German was significantly predicted by resentment elicited by another intergroup context, namely the relation between East and West Germans.

The next chapter explicates the theoretical background of the research presented in this thesis. Subsections address the social identity approach, intergroup emotion theory, and triggered displaced aggression theory along with relevant research. Chapter 3 elucidates how the precise hypotheses were derived. First empirical evidence from a questionnaire study relating to naturally occurring intergroup relations is presented in chapter 4. This initial study exclusively utilized categorical emotion scales to assess participants' affective reactions to the experimental manipulations. A different approach to the assessment of affect is outlined in chapter 5, core affect measures are proposed as an alternative to the much more common emotion adjective rating scales. Subsequent studies, reported in chapters 6 and 7, employed core affect measures as well as the adjective rating scales. Study 2, reported in chapter 6, is again a questionnaire study relating to naturally occurring groups. Two computer-based studies employing a minimal group paradigm (Tajfel, Billig, Bundy, & Flament, 1971) are reported in chapter 7. All studies aimed at demonstrating outgroup derogation as a result of triggered displacement and investigating the role of group-based anger. The concluding chapter 8 summarizes and discusses the obtained results, infers implications and future research objectives.

2 THEORETICAL BACKGROUND

Every individual belongs to a number of social groups. Commonly relevant groups base for example on nationality, gender, age, race, or religious affiliation. These group memberships oftentimes guide our behavior when we interact with other people (e.g., Bushman & Bonacci, 2004; Gaertner & Bickman, 1971), our cognitions about other people (e.g., Devine, 1989; Pettigrew, 1979; Wittenbrink, Judd, & Park, 1997), and how we feel about them (e.g., Cottrell & Neuberg, 2005; Fiske, Cuddy, Glick, & Xu, 2002; Gordijn, Wigboldus, & Yzerbyt, 2001). Intergroup bias is the scientific construct that incorporates all the behaviors, cognitions, and attitudes along group lines that are systematically more favorable towards ingroup than outgroup members (see Brewer & Brown, 1998; Hewstone, Rubin, & Willis, 2002, for reviews) The terms denoting behaviors, cognitions, and attitudes along group lines are social discrimination, stereotypes, and prejudice, respectively. The focus of the research presented in this thesis is on intergroup behavior.

Social *differentiation* is unequal treatment based on group membership. It is important to note, however, that social differentiation is not inherently discriminatory. There are cases where differential treatment according to group membership is reasonable, like denying children access to alcohol because of their age-group or allowing only people who hold a driver's license to actually drive a car. Even positively differentiating members of particular groups like unequally extensively supporting children with learning disorders qualifies as social differentiation. Social *discrimination* on the other hand denotes such differentiating behavior that is based on group membership and that is perceived as illegitimate (Mummendey & Otten, 2001). The interacting parties or even a non-involved observer may disagree whether or not unequal group-based treatment is adequate, their perspectives may thus diverge whether an unequal group-based treatment is merely social differentiation or social discrimination. The evaluative judgment of the differential treatment as illegitimate is pivotal. This aspect points out the difficulty to determine social discrimination objectively while each party may consider its own view as indisputably correct.

As will be argued in more detail below, explicitly negative treatment of outgroup members is one form of social discrimination, distinguishable from favorable treatment of ingroup members. A group perspective is warranted to address this intergroup phenomenon. Fundamental to the theorizing in the current thesis is the social identity approach.

2.1 The Social Identity Approach

The social identity approach (Turner, 1999) encompasses social identity theory (SIT; Tajfel & Turner, 1979, 1986; see Brown, 2000, for a review) and self-categorization theory (SCT; Turner, 1985; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). Both theories have major impact on research on group phenomena in general and negative intergroup relations in particular. The primary focus in this section is on SIT.

According to SIT, intergroup behavior encompasses all behavior that is driven by a person's social identity rather than by the person's unique self (Tajfel & Turner, 1986). Social identity refers to those aspects of a person's self-concept that originate from the person's perceived social category memberships and the associated affective impact. Yet, instead of a simple dichotomy SIT postulated a dimension from interpersonal to intergroup behavior, behavior can be located anywhere on this dimension (Tajfel, 1978). On the intergroup pole, behavior is determined by the social identity, it bears on group concerns, and different ingroup members are almost interchangeable. SCT substituted differentially inclusive levels of self-categorization for the hypothesis of the interpersonal-intergroup continuum (Turner, 1985). A hierarchical system of cognitive representations of the self (i.e., self-categorizations) with different levels of abstractness is assumed. The more inclusive a self-categorization, the more abstract it is.

Four central ideas of social identity theory (Tajfel & Turner, 1986) can be distinguished. These are the three psychological processes (1) social categorization, (2) identification, and (3) social comparison. The fourth central idea relates to a motivational principle, the striving for positive ingroup distinctiveness.

Firstly, the basic cognitive process of social categorization, the perception of membership in a particular social category, is fundamental for any group phenomenon to occur. SCT (Turner et al., 1987) emphasizes that the psychological activation, the salience, of a particular level of self-categorization relative to other levels of self-categorization varies as a function of an interaction of contextual and personal features. The accessibility of a particular social categorization reflects the person's motivational state and knowledge structure, it refers to the person's readiness to utilize a social categorization. Fit of a level of categorization and the given social situation is distinguished in two aspects. Comparative (or structural) fit refers to the differences perceived between single members of a social category relative to differences perceived between the social category and other social categories

within the comparative context. Small intragroup differences relative to the perceived intergroup differences constitute high comparative fit. Normative fit on the other hand relates to the social meaning of a categorization, it is defined by consistency of the perceived intra- and intergroup similarities and differences with stereotypical beliefs about the content of the particular social categorization. The salience of a particular level of self-categorization is thus functionally related to a given context, social categories are salient to the extent that they are normatively appropriate and provide meaning (Oakes, 1987).

One facet of the accessibility of a specific social categorization relative to other levels of categorization is the strength of identification with the respective category. At the same time, identification with the category and the associated affect, attachment, emotional involvement, and valuing one's group membership constitute the second psychological process postulated by SIT. This illustrates the fundamental nature of categorization as an ingroup member, it is a prerequisite for affective experiences in relation to that group.

Thirdly, SIT builds on Festinger's (1954) recognition of the importance of social comparisons. Social comparisons are central to persons' identities, by means of comparison they learn who they are. The ingroups' differences from other groups and the individual's shared similarities with other ingroup members define the person's social identity. Importantly, evaluative intergroup comparisons are performed only along relevant dimensions with relevant outgroups. Both qualifications "relevant" are significant. Not each and every outgroup but only those that are similar and, at best, slightly inferior are suitable for a comparison. On irrelevant dimensions ingroup members might be comparatively lenient towards the outgroup and outgroup favoritism may occur (Mummendey & Schreiber, 1984; Mummendey & Simon, 1989). The reason for differential suitability of comparison dimensions and outgroups is given by the fourth central idea of SIT.

As its fourth major idea, SIT posits a desire for positive ingroup distinctiveness as the central motivational force in intergroup relations. Positive differentiation of one's ingroup benefits the self, because a positive ingroup enhances the social identity and thus the positive value of the self-concept. A positively distinct social identity is achieved and maintained through evaluative intergroup comparisons with a favorable outcome for the ingroup. Outgroup superiority on a relevant comparison dimension can be detrimental with regard to the ingroup's positive identity. Therefore, when confronted with a negative comparison outcome, individuals are assumed to engage in strategies to re-establish a positive social identity (Tajfel & Turner, 1979, 1986). Reactions to a threatened or negative social identity

are distinguished in individual mobility, social creativity, and social competition. Social creativity includes reevaluation of a comparison dimension as well as change of comparison dimension or of comparison outgroup (see Blanz, Mummendey, Mielke, & Klink, 1998, for an empirical systemization of identity management strategies).

2.1.1 Ingroup favoritism versus outgroup derogation

Importantly, the striving for a positive social identity is not restricted to the cognitive activity of making social comparisons. People are not only motivated to make favorable comparisons, but also to favor the ingroup over the outgroup in terms of behavior. Relatively favorable ingroup treatment compared with outgroup treatment is conceptualized to serve the function of making the ingroup more positively distinct (but see Mummendey, 1995, for a critical discussion of the proposed functional link between social discrimination and positive distinctiveness). A study employing the minimal group paradigm (Tajfel et al., 1971) demonstrated that even explicitly arbitrary categorizations can under certain conditions ensue differential treatment of people according to their group membership (Billig & Tajfel, 1973). Unlike realistic conflict theory (Campbell, 1965; Sherif, 1967) that proposes real conflict of group interests over objective resources or incompatible goals as causes of intergroup conflict, SIT is thus also applicable to intergroup relations without a common history. Besides, SIT extends to intergroup relations without negative interdependence of groups' realistic interests.

Relatively favorable treatment of the ingroup is proposed to serve the creation, maintenance, and enhancement of one's positive social identity, it ameliorates the ingroup's evaluation relative to the outgroup. Positive distinctiveness is most effectively established by maximizing the difference between ingroup and outgroup rather than by maximizing the absolute status of the ingroup on the respective dimension. Independent from the absolute ingroup status, the larger the difference between ingroup and outgroup, the more positively distinct is the ingroup. Indeed, participants sacrifice absolute ingroup gain for a relative advantage over the outgroup (Brewer & Silver, 1978). This observation can on the other hand be interpreted to signify that the outgroup status may under certain conditions, on some comparison dimensions, be a necessary reference point for an evaluation of the ingroup status. Absolute ingroup status by itself may not always be conclusive as to whether or not it implies a positive evaluation of the ingroup whereas positive distinctiveness from the outgroup verifies a positive ingroup status.

Even if maximal differentiation is employed as a strategic rather than an evaluative device it is not unequivocally interpretable. An empirical problem with maximal differentiation between ingroup and outgroup is that – without a proper standard – it is impossible to deduce whether it rests on promoting the ingroup, downgrading the outgroup, or both. An alternative to the interpretation that maximal differentiation is driven by the motive to maximize the ingroup's relative superiority is that ingroup profit is consciously sacrificed to diminish the outcome for the outgroup. It is however of major importance to distinguish between (1) preferential treatment of ingroup members, termed ingroup favoritism, and (2) explicitly negative treatment of outgroup members, termed outgroup derogation[1]. Outgroup derogation focuses on outgroup treatment as opposed to ingroup treatment, the intention is to inflict harm on outgroup members, not to promote the ingroup. This definition pinpoints aspects that distinguish outgroup derogation from ingroup favoritism. Preferential treatment of the ingroup is the primary and more frequent phenomenon. Positive regard for and identification with the ingroup are furthermore presumed to be a necessary but not sufficient precondition of outgroup derogation (Brewer, 1999, 2001). In the beginning of intergroup research, however, it had not been recognized that these two differentiating behaviors are separable phenomena.

Brewer (1979, 1999, 2001) argued as early as 1979 that ingroup favoritism and outgroup derogation are distinct phenomena, not simply two sides of the same coin. Brewer and Campbell (1976) had found no negative correlation between favorability of evaluations of one's ingroup and social distancing from outgroups. Moreover, Struch and Schwartz (1989) found the predictors for explicitly negative behavioral intentions towards the outgroup to be at best very weak predictors of relative evaluative ingroup favoritism on positive traits. Neither did any of the predictors for negative outgroup-directed behavioral intentions reliably predict relative evaluative outgroup negativism on negative traits. These findings are consistent with other studies on the attitude-behavior link in intergroup relations research (e.g., LaPiere, 1934). A whole range of possible explanations apply to this imperfect link (Mackie & Smith, 1998). Most importantly with regard to the current objective, the reported results call the assumption into question that ingroup- and outgroup-directed attitudes or ingroup favoritism and outgroup derogation form a single dimension or are reciprocally

[1] Explicitly negative treatment comprises behaviors imposing something undesirable on a person as well as withholding or taking something desirable from a person.

related. In fact, different underlying processes are assumed. Consequently, an explanation why people come to derogate (members of) outgroups cannot simply be deduced from the knowledge already acquired about why individuals tend to favor their ingroups; the phenomena need to be researched separately.

With the exception of Struch and Schwartz (1989), research explicitly addressing outgroup derogation is still largely missing to date. When behavior or at least behavioral intentions regarding social discrimination have been studied, most of the time it was ingroup favoritism that has been looked at. Since the data obtained by Struch and Schwartz (1989) were correlational no causality propositions could be tested. By contrast, the research presented in the current thesis addressed outgroup derogation with experimental studies. It is such the first attempt to investigate the process underlying outgroup derogation.

2.1.2 Outgroup derogation and positive distinctiveness

Superficial consideration might deem outgroup derogation as running counter to achieving or maintaining a positive identity. People should be motivated to conform with norms in order to maintain or improve their positive social self-image. Bringing the motivational force postulated by SIT and negative treatment of outgroup members together, they appear incompatible at first glance. However, such a conclusion would be premature. Depending on the relevant intergroup relation, explicitly negative treatment of the outgroup may be accepted and even normatively expected from ingroup members. Appropriate behavior is defined by reference to the norms of groups one belongs to and these norms hinge on the particular intergroup relation (Turner et al., 1987). Policemen, for example, most probably adhere to disparate norms when interacting with suspects than with superiors or victims of crime. If an outgroup is perceived as threatening, a pre-emptive strike might be considered appropriate. The treatment of the detainees in the Guantanamo Bay camps is probably likewise viewed as rational and appropriate by the U.S. military. From a perpetrator's perspective explicitly negative treatment of outgroup members may be legitimate *differentiation*. Divergences of appraisal are at the heart of many, if not all, intergroup conflicts. Most probably, judgmental biases come into play (e.g., Pettigrew, 1979). Importantly, the perpetrator may not conceive of his actions to wrong someone. Negatively differentiating the outgroup from the ingroup can thus also result in a relatively more positive ingroup-concept and consequently in a more positive self-concept. Accordingly, both forms of behavioral intergroup bias are capable of creating an ingroup favoring intergroup

comparison. Still, explaining torture and murder with a desire for positive distinctiveness seems to unduly expand the scope of this indisputably powerful motive. Thus, the processes underlying outgroup derogation remain a topic for further research. One potential route to outgroup derogation is proposed in the next subsection and tested in the empirical part of this thesis.

2.2 Intergroup Emotion Theory

Emotions are regarded as functional for the human organism (e.g. Averill, 1983; Cosmides & Tooby, 2000; Damasio, 2000; Keltner & Gross, 1999). The significance of affect is also recognized in intergroup research. Theories that focus on particular intergroup relations, namely aversive, modern, or symbolic racism (Gaertner & Dovidio, 1986; McConahay, 1986; Sears & Henry, 2003), assign central importance to negative outgroup affect. Emotions have been demonstrated to be potent and consistent predictors of attitudes towards outgroups (Esses, Haddock, & Zanna, 1993; Stangor, Sullivan, & Ford, 1991). Additionally, the importance of affect is recognized with regard to intergroup contact, Tropp and Pettigrew (2004) discuss contact research with a particular focus on the affective ties with the outgroup. One theory addressing affect as an intergroup phenomenon widely applicable is intergroup emotion theory (Smith, 1993, 1999).

Smith (1993, 1999) proposed the idea, that emotions cannot only be felt on behalf of the self but can also be experienced on behalf of social groups the individual belongs to. Such affective experiences are referred to as group-based emotions. Smith' proposition followed from an integration of appraisal theories of emotion (Frijda, 1986; Roseman, 1984; Scherer, 1988; Smith & Ellsworth, 1985) with social identity theory (Tajfel & Turner, 1979, 1986) and self-categorization theory (Turner, 1985; Turner et al., 1987).

In the elicitation of emotions, the perceiving individual actively and constructively appraises the environmental situation in relation to its needs and goals (Lazarus, 1991b). This active role of the appraising person accounts for flexibility, for interpersonal differences as well as intrapersonal differences over time in response to identical stimuli (Roseman, 1984). Appraisal theorists view emotions as adaptive responses, specific emotions involve a readiness for specific action tendencies (Frijda, 1986; Frijda et al., 1989; Lazarus, 1991b; Roseman, 1984; Smith & Ellsworth, 1985; see also Damasio, 2000).

As explicated in the previous subsection, social groups can become part of a person's self, they then constitute a person's social identity. Like any other part of the self, the social identity takes on motivational and affective significance. The experience of group-based emotions is thus predicated on identification with the group. Provided an individual does identify with a particular group, situations or events with affective significance for that group elicit group-based emotions. For group-based emotions to occur, the individual need not be affected personally. A quite similar idea already found expression in Frijda and colleagues' (1989) appraisal dimension self-relevance.

When the social self is concerned, the individual person appraises the environmental situation in relation to its *group's* needs and goals. In other words, the appraisal process is highly dependent on the appraising individual's group membership given the situation is relevant to that particular group and the individual identifies with the group. Specific group-based emotions are associated with specific group-based action tendencies. The fundamental importance of the salience of a particular categorization was demonstrated in research showing differential appraisal outcomes depending on categorization among highly identified group members (Gordijn, Yzerbyt, Wigboldus, & Dumont, 2006), differential emotional reactions (Gordijn et al., 2001) as well as differential behavioral tendencies (Yzerbyt et al., 2003) and actual behaviors (Dumont, Yzerbyt, Wigboldus, & Gordijn, 2003). Group-based emotions are functionally directed at the regulation of intergroup behavior. Group-based anger, specifically, is associated with action tendencies moving against the provoking outgroup (Mackie et al., 2000; Yzerbyt et al., 2003) and is furthermore assumed to be associated with action tendencies intended for outgroup harm. Successful implementation of such emotion-induced intergroup behavior diminishes the subjective experience of the respective group-based emotion; unsuccessful implementation or exerting a behavior that does not satisfy the emotionally induced behavioral tendency sustains or even intensifies the group-based emotion (Maitner, Mackie, & Smith, in press).

Quite interestingly, the relationship between identification with a particular group and the intensity with that group-based emotions are experienced does not seem to be simply linear. It is not always the case that with increasing identification with a group more intense group-based emotions are experienced. Group-based guilt, for example, is lower in highly identified participants as compared with lowly identified participants (Doosje, Branscombe, Spears, & Manstead, 1998; Gordijn et al., 2006). Different interpretations pertain to this result. Either highly identified participants concede less group-based guilt than lowly

identified participants who do not have a comparably strong need to cope with the unpleasant emotion or participants who experience strong group-based guilt reduce their identification with the respective group (cf. Kessler & Hollbach, 2005).

2.2.1 Empirical results on group-based emotions

Much research activity building on intergroup emotion theory focused on negative group-based emotions. The specific negative emotions that have been addressed comprise fear (e.g., Dumont et al., 2003), Schadenfreude (Leach, Spears, Branscombe, & Doosje, 2003), guilt (Branscombe, Doosje, & McGarty, 2002; Doosje et al., 1998; Iyer, Leach, & Crosby, 2003; Miron, Branscombe, & Schmitt, 2006), and anger (e.g., Gordijn et al., 2001; Gordijn et al., 2006; van Zomeren, Spears, Fischer, & Leach, 2004; Yzerbyt et al., 2003).

Gordijn et al. (2001) showed a stronger anger-reaction from those participants who were led to perceive victims of unfair treatment as similar to themselves (instigating an ingroup categorization) compared with participants who either focused on differences between the target and themselves or whose focus was not manipulated. In addition to mere categorization, the level of identification with the particular group is highly important for the experience of group-based emotions (Mummendey, Kessler, Klink, & Mielke, 1999). Stronger anger responses to unfair treatment of persons that participants categorized as ingroup members emerged for participants highly identified with that group than for participants lowly identified (Gordijn et al., 2006; Yzerbyt et al., 2003). On the other hand, anger towards either in- or outgroup impacts on the level of identification (Kessler & Hollbach, 2005). Whereas anger towards the outgroup increased identification with the ingroup, anger towards the ingroup decreased identification with that same group.

In line with Malcolm X's vision, the experience of group-based anger was also demonstrated to predict collective action tendencies when one's ingroup was disadvantaged (van Zomeren et al., 2004). Mummendey and collaboraters (1999) had shown fraternal resentment to mediate the effect of identification on collective identity management strategies of a group with inferior status.

Mackie and collaborators (2000) provided empirical evidence that group-based emotions can have behavioral consequences and what is even more intriguing, *specific* behavioral consequences. Group-based anger was demonstrated to be a potent predictor of the tendency to move against the outgroup. With regard to the aim of the current thesis, however, it has to be noted that their dependent variable cannot be equated with outgroup

derogation. Categorization in ingroup versus outgroup based on adherence to opposing values and the move-against tendency scale seemed to primarily tap disputatious inclinations ("want to confront them", "want to oppose them", "want to argue with them"; exception: "want to attack them" in study 2). Only one item unarguably implied harmful intentions. Consequently, the motive underlying the move-against tendency rather seems to have been to change the other group's opinion. The present thesis addressed group-based anger as a predictor of explicitly harmful behavior towards an outgroup.

2.2.2 Relations between affect and cognition

An affective route to outgroup derogation is unlikely to exist independent of cognition. Of course, there is reason to doubt a simple, linear causal relation between cognitive appraisal and affect (e.g., Lazarus, 1991a). The mood-as-information hypothesis (Schwarz & Clore, 1983, 2003) and the affect infusion model (Forgas, 1995) are two theoretical approaches that, although being highly dissimilar, both formalized affective influences on cognition. The mood-as-information hypothesis holds that subjectively experienced affect can be used as a source of inference in its own right, it can in other words also be the object of appraisal. The affect infusion model proposes different levels of affective infusion into cognitive processes depending on the processing strategy. Applied to intergroup relations, intergroup bias has been observed differentially depending on participant's particular kind of mood (happy vs. sad) in combination with personal relevance of group membership (Forgas & Fiedler, 1996). Measurement of processing latencies established that greater intergroup bias resulted from more heuristic processing when personal relevance of group membership was low and participants were in a happy mood. More elaborate motivated processing, by contrast, produced greater intergroup bias among participants who were in a sad mood and to whom group membership was of relatively high importance. Anger, other than sadness, has further been shown to be associated with an increased reliance on simple heuristic cues, specifically on stereotypes (Bodenhausen, Sheppard, & Kramer, 1994).

Emotions are assumed to result from cognitive appraisal processes. Yet, at the same time, the emotional experience itself consists, in part, of the perception of a particular appraisal pattern (Frijda, 1993; Lazarus, 1991a). Appraisal is therefore not only antecedent but also content of emotional experience. Moreover, the actual antecedent appraisals need not be accurately represented by the perceived appraisal structure. Emotional experiences

themselves summon cognitive consequences like attributions or attentional changes and these secondary elaborations modulate and more fully determine the emotional experience (see also Berkowitz, 1990, 1993).

Insights from neuroscientific research might foster the understanding of the relations between affect and cognition. Thus far, empirical evidence for bi-directional pathways is only available for fear. The neuroanatomical structures of fear directly and indirectly project to other brain structures, thus influencing the subsequent input they receive (cf. LeDoux, 2000). An elaborated model that integrates insights from neuroscience demonstrating how affect and cognition are inextricably linked through recursive processes was proposed by Lewis (2005).

In conclusion, intergroup emotion theory provides a framework for understanding emotional reactions to outgroup members deriving from social identity concerns. The current thesis aims at further corroborating the notion that individuals who identify with the social category they belong to experience specific group-based emotions following group-based appraisal of situations or events relevant for the respective group. Situational characteristics enter the explanatory process via appraisal and it further seems reasonable to assume, that cognitive appraisals processes are themselves influenced by affect. Group-based emotions are functionally related to intergroup behavior. Differentiated emotional and behavioral reactions towards the same outgroup in different contexts are rational and explainable by the constructive role of the appraising individual. In particular, group-based anger is proposed as an antecedent of out-group derogation.

2.3 Triggered Displaced Aggression

One classical explanation of aggression, the frustration-aggression hypothesis (Dollard, Doob, Miller, Mowrer, & Sears, 1939), holds that people act aggressively when they have been frustrated. At the same time, frustration was conceived as the necessary antecedent of aggressive behavior. Frustration is defined as blockage of goal attainment or failure to obtain anticipated rewards. While this simple explanation had to be revised – frustration can lead to a variety of behaviors and aggression can occur without frustration – the general idea is still present in more recent theories. The cognitive-neoassociationistic model of emotional aggression (Berkowitz, 1990, 1993) conceptualizes aggression as one possible action tendency following from aversive stimulation; frustration is one form of aversive stimulation among others (e.g., pain, physical or psychological discomfort).

Aversive stimulation can also result from non-human sources like hot temperatures. Similarly, frustration because of getting stuck in a traffic jam has no tangible source that would pose an appropriate target for an aggressive response. In other cases, the target is not available for direct retaliation as when one is upset about a politician or an aggressive response to the source of the aversive stimulation may be suppressed because the person enjoys considerable power or is a child. The aggressive response may then be displaced to another target. A recent meta-analysis found displaced aggression to be a robust effect with a mean effect size of $d = 0.54$ (Marcus-Newhall, Pedersen, Carlson, & Miller, 2000). Participants who had been provoked but were unable to retaliate were more aggressive towards an innocent target than non-provoked participants.

Displaced aggression can further be distinguished from triggered displaced aggression (Miller & Marcus-Newhall, 1997; Miller et al., 2003; Pedersen et al., 2000). Triggered displaced aggression denotes an interactively produced, disproportionately aggressive response towards a target that committed a minor provoking transgression. This response is conceptualized to result when the aggressor, prior to the interaction with the aggression target, experienced a comparatively strong provocation that precluded an aggressive response. The term triggered displaced aggression can thus be decomposed as follows. The aggressive response is displaced in the sense that it is not directed towards the source that elicited the aggressive behavioral tendency in the first place. The aggressive response is triggered in the sense that it is not invariably directed towards any target but only towards such a target that subsequently provides a minor provocation. In triggered displaced aggression, the initial strong provocation and the subsequent minor provocation interact to produce the disproportionately aggressive response to the trigger[2]. It exceeds the aggression that would be expected based on the intensity of the trigger alone or that would follow from simple additive effects of initial and triggering provocation. The reliability of the triggered displaced phenomenon cannot be determined yet, because the conditions specified (Miller et al., 2003; Pedersen et al., 2000) have to date only been fulfilled by a couple of studies. Supposedly though, triggered displaced aggression has greater ecological validity than aggression displaced on absolutely innocent targets (Miller & Marcus-Newhall, 1997).

[2] Note that both incidents are provocations, though differing in intensity. From now on I will relate to the second, mild provocation as "trigger" owing to its function in the experimental paradigm, to the initial strong provocation I will simply refer as "provocation". This linguistic rule facilitates reading while maintaining a clear distinction between both manipulations.

Triggered displaced aggression was first mentioned by Dollard (1938) in an article concerned with prejudice. Curiously, it had lost popularity after an initial period of high interest in the phenomenon. When it was recently re-discovered (Miller & Marcus-Newhall, 1997; Miller et al., 2003; Pedersen et al., 2000) impressive research was conducted on interpersonal aggression (Bushman, Bonacci, Pedersen, Vasquez, & Miller, 2005; Pedersen et al., 2000; Pedersen, Bushman, Vasquez, & Miller, in progress; Vasquez, Denson, Pedersen, Stenstrom, & Miller, 2005). To outgroup derogation it has thus far not yet been applied.

2.3.1 Processes underlying triggered displaced aggression

The underpinnings of triggered displaced aggression are not yet determined. Miller and colleagues (2003) suggest two complementary processes that may apply under differential circumstances: arousal-based and rumination-based triggered displaced aggression. The arousal-based explanation suggests that persisting negative affective arousal that was elicited by the initial provocation causes the aggressive response towards the triggering target. The still-present arousal may combine with the arousal induced by the target. Due to its dependency on physiological arousal, this explanation is only applicable to chains of incidents, where the triggering event followed the initial provocation within a couple of minutes. After a long temporal delay, the arousal would have dissipated.

This explanation resembles excitation-transfer theory which also accounts for aggression-enhancing temporal carry-over effects (Zillmann, 1971, 1983). Excitation-transfer theory holds that within a certain time frame excitatory reactions to unrelated stimulation intensify subsequent emotional experiences to current stimuli when the person is unaware of the actual source of the residual excitation. A current excitatory state that resulted from the combination of the reaction to the current stimuli and the residues of excitation from prior stimulation will be falsely ascribed to the current stimulus. The research on excitation-transfer, however, is not informative with regard to triggered displaced aggression. Two key conceptual differences of the research paradigms prohibit direct inferences (Miller et al., 2003). In excitation-transfer research, the target of the aggressive response is the person that delivered the initial strong provocation, not a displaced target. Besides, the analogue of the trigger in excitation-transfer studies is not trivial but moderately to highly arousing.

Rumination denotes recurrent unintended conscious thoughts that revolve around a particular theme (cf. e.g., Martin & Tesser, 1996). The ruminatively-based explanation of triggered displaced aggression holds that rumination maintains an aggressive internal state

that disposes towards later displaced aggression. Rumination might result in the formation of cognitive representations of the subjective state instigated by the initial provocation. Rumination might thus function as a prime such that an ambiguous triggering event is more easily noticed and is more probably attributed to intention on the side of the elicitor of the triggering event. This explanation is consistent with Berkowitz' cognitive-neoassociationistic model of emotional aggression (1990, 1993) which assumes that aggression-related affect, thoughts, memories, and expressive-motor and physiological reactions are linked by means of an associative network. Activation spreads along the associative network when any one component is activated, thereby also activating the other components. Rumination would maintain a certain level of activation of the aggression network, subsequent minor transgressions would therefore be more readily perceived as provoking and would elicit an aggressive response more easily. Furthermore, rumination might maintain or regenerate the physiological arousal stemming from the initial provocation.

The ruminatively-based explanation of triggered displaced aggression makes a different prediction than excitation-transfer theory (Zillmann, 1983) when rumination is explicitly concerned with the initial provocation. Whereas the excitation-transfer theory predicts a decrease in displacement because of the high salience of the original source of anger, the rumination-based explanation predicts that the rumination maintains the internal aggressive state and thus, that higher amounts of displacement result. Indeed, ruminating about a provocation has been shown to increase the aggressive response towards a triggering target (Bushman et al., 2005, studies 1 and 2).

The arousal-based explanation is confined to constellations where the triggering incident follows up on the initial provocation rather quickly. Rumination, in contrast, has been shown to augment triggered displaced aggression even when the trigger occurs not until 8 hours later (Bushman et al., 2005, study 3). It should be noted, however, that the effect obtained after the 8 hour delay is not unequivocally attributable to the maintenance of an aggressive internal state resulting from rumination. Participants had initially been writing an essay and received a bad evaluation from an ostensible other participant. In order to induce rumination, the experimenter told participants that the partner in the next experimental session 8 hours later would have access to the essay and the evaluation. He further instructed participants explicitly to think about how they might justify their essay and explain the evaluation to their next partner. Whereas in the no rumination conditions the initial strong provocation and the triggering event were independent, both incidents were coupled in the

rumination conditions. Consequently, in the rumination conditions, the ostensible second interaction partner is highly likely to be perceived as biased on the basis of his knowledge about the previous bad evaluation. His slightly negative evaluation of the participant's performance on an anagram task (i.e., the trigger) may have been easily conceived as an unfairly distorted judgment. Through the established association between both interaction partners the triggering person may have acquired the quality of an aggressive cue. Rumination throughout the extended period of time and the assumed maintenance of an aggressive internal state are not necessary to explain the observed results. Considerably stronger results corroborating the significance of rumination would have been obtained had the augmented triggered displaced aggression been shown towards an absolutely unrelated target (a confederate of course), for instance in the hallway prior to the second experimental session. In case that would have actually worked out, this would give rise to ethical concerns. One would have to ask whether ruminatively-based triggered displaced aggression also occurred *during* this 8 hour delay towards real-life interaction partners.

2.3.2 Triviality of the triggering provocation

For the interactive effect observable in triggered displaced aggression to occur, it is crucial that the second provocation is trivial, that is, of low intensity (Vasquez et al., 2005). Low intensity triggers are more ambiguous with respect to whether or not they constitute a provocation. An interaction of initial strong provocation and subsequent minor provocation (i.e., the triggering event) is impossible when the second provocation exceeds a certain intensity and thus looses its quality of ambiguity. Someone stepping on one's foot might well be dismissed as an unintended accident but could function as a trigger if one had experienced a strong provocation prior to this incident. By contrast, being kicked into the stomach is hardly ambiguous and would elicit an aggressive response in its own right. Equally high levels of aggression could of course follow from a strong second provocation, but in that case the second provocation would be salient and unequivocally perceived as provocative. Consequently, it would not function as a trigger, that is, it would not interact with the initial provocation to produce a disproportionately aggressive response.

However, what precisely the requirement regarding "triviality" is, remains somewhat unclear. In their conceptual analysis, Miller and Marcus-Newhall (1997) define triviality in relative, not in absolute terms. Trivial triggers are such actions that "by themselves (in the absence of prior provocation), would elicit *small* [emphasis added] amounts of aggressive

retaliation" (Miller & Marcus-Newhall, 1997, pp. 84). The theoretical model of triggered displaced aggression (Miller et al., 2003) does not explicitly address this issue. It does however relate to research (Pedersen et al., 2000) where the trigger, "when it was not preceded by a strong prior provocation from another source at Time 1, its presence or absence had *absolutely no effect* [emphasis added] on aggressive responding toward this second person" (Miller et al., 2003, p. 78). Nevertheless, manipulation checks regularly indicate a reliable difference between the mild trigger and the no trigger (or neutral) condition in terms of resulting affect and/or rational judgments concerning the triggering event (Bushman et al., 2005, study 1; Pedersen et al., 2000; Pedersen et al., in progress, studies 2 and 3; Vasquez et al., 2005). On the basis of available evidence it cannot be decided whether the distinction identified here is indeed significant. Triggering events that, in themselves, warrant some small amount of aggressive responding and triggering events that have no effect at all on aggression in the absence of prior provocation may lend themselves equally to interaction with the initial provocation.

2.3.3 Triggered displaced aggression and intergroup relations

Triggered displaced aggression has thus far not yet been researched in intergroup relations. However, Kessler and Mummendey (2001) demonstrated in a longitudinal study that determinants of conflict with a specific outgroup at the same time predicted conflict in another intergroup context. The study had been conducted in the context of the German re-unification. Specifically, resentment of the relationship between East and West Germans directly and indirectly enhanced xenophobia in East German participants. The indirect path worked via self-categorization as German (i.e., categorization on the superordinate level). If mentioning the outgroup foreigners brought to mind irritating thoughts about the Germans-foreigners intergroup relation (e.g., the negative interdependence on the job market), the influence of resentment stemming from the inter-German relation on xenophobia might be an instance of triggered displaced aggression.

Furthermore, the status of the triggering target as either in- or outgroup member has been demonstrated to moderate the effect of a triggering action following a comparatively strong provocation on displaced aggression (Pedersen et al., in progress, study 2). Group status was determined following a minimal group procedure (Tajfel et al., 1971). Although no non-categorized triggering targets were included in the design to serve as comparison standards, evidence strongly suggests that the ingroup status functioned as a buffer against

triggered displacement of aggression rather than outgroup status inducing further escalation. The procedures regarding implementation of provocation and trigger had been used before and shown to be effective (Pedersen et al., 2000, study 1; Vasquez et al., 2005) so that interactively produced levels of aggression could reasonably be expected to occur. Therefore, the failure to find more aggression towards ingroup targets when provoked participants subsequently encountered a trigger as compared with no subsequent trigger can rationally be interpreted as reduced aggression following the mitigating influence of the target's ingroup status. For outgroup targets the effect of trigger in the provocation condition was highly significant, more aggression was displayed towards targets providing a triggering action as compared with non-triggering targets. Notably, the negative affective reaction to the triggering incident among provoked participants was independent from group status of the person emitting the trigger. It thus seems that participants refrained from acting on their negative affect when the target would have been an ingroup member. Similar results were obtained when targets were not explicitly categorized as either ingroup or outgroup members but expressed similar versus dissimilar attitudes relative to the participant's own attitude or were described as possessing either positive or negative personality traits (Pedersen et al., in progress, studies 1 and 3). No triggered displaced aggression was observed towards targets that supposedly held similar attitudes or targets that were said to possess positive personality traits. For targets with dissimilar attitudes or possessing negative traits the disproportionately aggressive response to a trigger was observed among previously provoked participants. In addition, the study manipulating valence of the triggering target included a control condition (Pedersen et al., in progress, study 3), the target was described with neutral personality traits. Results corroborate the notion that the observed difference between ingroup and outgroup targets resulted from the mitigation of aggression towards an ingroup member. In the trigger condition, neutral and negatively valenced targets similarly received augmented levels of aggression, whereas for positively valenced targets the trigger had no such effect.

Outgroup status did not seem to particularly enhance the augmentation of displaced aggression (Pedersen et al., in progress, study 2). This is consistent with results that the default for novel minimal outgroups is rather neutral than negative (Otten & Moskowitz, 2000; Otten & Wentura, 1999). Inasmuch as outgroups are conceived as sources of conflict and competition or are associated with negative stereotypical expectations, though, the mere appearance of an outgroup might function as a triggering event. In the longitudinal study that appears to have documented triggered displaced aggression directed at foreigners, the

research material did not include a triggering provocation (Kessler & Mummendey, 2001). How much the mere appearance of an outgroup is perceived as provoking potentially depends on the history of the particular intergroup relation.

Results from another field of research imply, that outgroup status compared with other target attributes might however be particularly prone to augment aggression. The interindividual-intergroup discontinuity effect repeatedly demonstrated by Insko, Schopler, and colleagues (see Schopler & Insko, 1992, for a review) illustrates that intergroup contexts promote competitiveness compared with interpersonal contexts. Furthermore, the interindividual-intergroup discontinuity effect was demonstrated to extent to aggressive behavior; groups were significantly more aggressive than individuals and higher levels of aggression were directed at groups than at individuals (Meier & Hinsz, 2004).

2.3.4 Affective mediation of the relationship between trigger and displaced aggression

The effect of the trigger manipulation on displaced aggression among provoked participants has been shown to be mediated by the negative reaction to the trigger (Bushman et al., 2005, study 2; Pedersen et al., 2000; Vasquez et al., 2005). This negative reaction can be decomposed in affective and cognitive reactions to the trigger. Both components have been shown to mediate the effect. Evaluative judgments of an alleged research assistant's performance mediated the effect of the trigger manipulation on aggression towards the research assistant (Pedersen et al., 2000, study 1). Anger and happiness about a triggering incident were shown in separate analyses to mediate the effect of the trigger on displaced aggression whereas an evaluative judgment only partially mediated the same relationship (Pedersen et al., 2000, study 2). Mediation by negative affect has also been demonstrated for physical aggression against the triggering target (Vasquez et al., 2005).

The present thesis aimed at establishing such an affective route to explicitly harmful behavior towards outgroup members. Importantly, in the case of triggered displaced outgroup derogation the individual target personally need not have done anything to elicit an aggressive response. The aggressor may likewise not be affected personally by the provocation, instead the aggressor may act upon a provocation directed at an ingroup. Since the behavior to be explained is an intergroup phenomenon, the assumed mediator should likewise be group-based. The role of group-based anger in an affective route to outgroup derogation was investigated.

3 HYPOTHESES

From the theory and empirical evidence explicated in the previous chapter the following hypotheses were derived.

3.1 Contrast Hypothesis of Triggered Displaced Aggression

The basic experimental design comprises two orthogonal factors, initial provocation and triggering provocation, each with one provoking and one non-provoking level. In the resulting 2×2 design, outgroup derogation will be observed only in the provocation-trigger condition. Participants who receive the comparatively strong initial provocation but encounter no triggering event afterwards will not show outgroup derogation, because the displacement is not assumed to occur arbitrarily towards any stimulus met following an anger-arousing incident. Outgroup derogation in this condition would represent mere displacement instead of triggered displacement of aggression (Miller & Marcus-Newhall, 1997). Without the initial strong provocation participants will not show aggression regardless of the level of the triggering factor. The non-provoked participants who do experience the triggering event will not show an aggressive response towards the outgroup delivering the triggering event, because the triggering event is operationalized to be trivial. The non-provoked participants who do neither experience the triggering event do not have any reason to aggress against the outgroup, provided participants do not perceive the outgroup per se as a provocation. In other words, the two provocations are expected to interactively lead to disproportionate outgroup derogation in the provocation-trigger condition.

According to the results from Marcus-Newhall and colleagues (2000) that revealed displaced aggression to be a robust effect, a main effect of provocation should be expected, either in addition to or instead of the predicted interaction effect. Marcus-Newhall et al. (2000) however seem to not have systematically excluded studies that may actually demonstrate triggered displaced aggression instead of mere displaced aggression. The inclusionary criteria of their meta-analysis do not refer to a potential trigger and, indeed, examples reported for the considered moderator variables suggest that some displacement targets may have shown irritating behavior. The target of aggression in a study by Worchel, Hardy, and Hurley (1976), for example, behaved in a fashion that closely matched the operationalization of the trigger conditions in more recent studies (Bushman et al., 2005, study 1; Pedersen et al., 2000, study 1; Pedersen et al., in progress, study 3). Therefore, the

hypothesis in the present thesis is, that aggression is not indiscriminately displaced on any target, but only on targets that themselves provide a minor provocation.

Planned contrast analyses are the most sensible test for the prediction of interactively produced outgroup derogation (Rosenthal & Rosnow, 1985; Rosnow & Rosenthal, 1989). In contrast to the diffuse hypotheses tests performed with omnibus *F* tests, planned contrast analyses test specific hypotheses and therefore possess higher statistical power. A 3 -1 -1 -1 focal contrast tests the prediction that the provocation-trigger condition deviates from the other three conditions. To use all degrees of freedom, additional contrasts orthogonal to the focal contrast and to each other have to be computed. Only when a General Linear Model that includes the three contrasts simultaneously reveals the focal contrast statistically significant and the other contrasts as a set not significant can the results be regarded consistent with the prediction. Statistical significance of the remaining contrasts as a set would indicate substantial residual between-group differences, that is, substantial variance left unexplained by the focal contrast. The procedure used in the current thesis to test for significant residual variance followed the recommendation by Niedenthal and colleagues (2002)[3]. Niedenthal et al. (2002) employed a 1-df test, the *F* value was obtained by adding up the sum of squares associated with the non-focal contrasts and dividing it by the mean square error (i.e., the quotient of error sum of squares and df of error). In effect, this procedure corresponds with testing the best possible 1-df contrast for all the remaining variance. Consequently, no orthogonal contrast could possibly become significant unless this test is significant.

In principle, significant residual variance is explored by means of the contrasts orthogonal to the focal contrasts. Deviating from that procedure, in the present thesis omnibus *F* tests were conducted whenever the 3 -1 -1 -1 contrast failed to account parsimoniously for the observed between-group differences. With the present research objective, specific comparisons among the remaining conditions would be less instructive than the tests of main and interaction effects.

The focus of the present research is on affective processes. The experimental design translated in affective terms is depicted in Figure 1. The first experimental manipulation was supposed to elicit an anger response in the provoking condition, in the non-provoking

[3] The test for significant amounts of residual variance proposed by Abelson and Prentice (1997) with two degrees of freedom is too liberal, it potentially fails to detect significant amounts of variance left unexplained by the focal contrast.

condition participants are not expected to experience anger. The second experimental manipulation by itself was supposed to elicit minor irritation in the triggering condition, no irritation was expected to result in the non-triggering condition.

	anger	no anger
minor irritation	outgroup derogation	
no irritation		

Figure 1. Experimental design in affective terms and contrast hypothesis of triggered displaced outgroup derogation.

If a triggered displaced behavioral response results from a priming effect such that the triggering event is more easily noticed or perceived as provoking, then the 3 -1 -1 -1 pattern should also be observable for variables representing cognitive appraisals preceding the behavioral response to the triggering outgroup (e.g., perceived threat or perceived legitimacy of the triggering incident). Furthermore, the rumination-based explanation and the arousal-based explanation both predict the highest level of anger among participants in the provocation-trigger condition, but for different reasons. Following the rumination-based explanation, participants in the provocation-trigger condition should report the highest level of anger, because due to the activation of aggression-related mental representations they appraise the triggering event as anger-eliciting, more so than participants in the other three conditions. The increased anger is then a consequence of the perception of the trigger as being more provocative in the provocation-trigger condition as compared with the other three conditions. The arousal-based explanation holds that an augmented experience of anger reflects persistent arousal instigated by the initial provocation combined with the arousal elicited by the triggering event itself. The trigger-elicited group-based emotions are interactively produced by both experimental manipulations in the provocation-trigger condition.

3.2 Mediated Moderation Hypothesis

Group-based emotions are hypothesized to mediate the relationship between the triggering provocation and the behavioral outcome, namely outgroup derogation. More precisely, a mediated moderation is expected to occur (Muller, Judd, & Yzerbyt, 2006).

Trigger-elicited anger will only lead to an increase in outgroup derogation when participants had previously experienced anger elicited by the initial provocation. Without a prior anger-reaction to the provocation, the minor irritation elicited by the trigger will not lead to outgroup derogation. At the same time, the affective reaction to the trigger moderates the effect of provocation-elicited anger on outgroup derogation. Only when trigger-elicited anger is present will displaced outgroup derogation occur. In the absence of trigger-elicited anger, provocation-elicited anger will not be associated with outgroup derogation.

Moderation analyses followed recommendations from Aiken and West (1991). The first order anger terms were z-standardized[4], afterwards an interaction term was computed by multiplying both z-standardized measures. Regression analyses were performed with all three predictors. Since the interaction is symmetrical, a significant interaction term signifies that the effect of one predictor on the criterion is conditional on the respective other predictor. However, for the sake of clarity, only the moderating effect of provocation-elicited anger will be reported.

3.2.1 Emotion-specificity hypothesis

Specific negative group-based emotions are hypothesized to relate differently to specific behavioral tendencies. Valence is not the only relevant dimension to distinguish between emotions (Lerner & Keltner, 2000). Anger is hypothesized to exert an influence on outgroup derogating behavior distinguishable from another negatively valenced emotion, namely dejection. An anger-response to the triggering incident will mediate the relationship between the trigger and the outgroup derogation whereas neither dejection nor positive emotions will mediate this relationship to a comparable extent.

3.2.2 Identification is a prerequisite for group-based phenomena

Identification with the ingroup is a necessary prerequisite for group-based appraisals, group-based emotions, and intergroup behavior. A mediation of the effect of the triggering event on outgroup derogation by the affective reaction to the trigger is therefore not expected among participants who do not identify with the social category they belong to. Neither group-based emotions nor outgroup derogation should occur among those participants who

[4] Centering as well as z-standardization reduce the correlation between first order term and product term and thus the problem of multicollinearity (Aiken & West, 1991).

are formally members of the respective group (which applies to all participants) but who do not identify with this group.

3.3 Overview of the Present Studies

The hypotheses were tested in four studies. All studies conducted within the scope of this dissertation employed the same basic experimental design. Participants learned at the very beginning that they would work on two separate studies that had only been combined for efficient data collection. The first study served to apply the comparatively strong provocation, the second study applied the triggering provocation and contained the dependent measures. Both experimental factors had two levels, one provoking and one non-provoking level, respectively. The design was fully crossed.

Importantly, the trigger manipulations as well as the dependent measures did not address participants individually but on the level of their respective social identities. The provocation manipulation on the other hand related to the individual person as well as to the social identity of the research participants across studies. Theoretically, the distinction between self-based and group-based initial provocation should be insignificant. Any kind of provocation is hypothesized to be capable of inducing the initial moderately strong negative affect.

Study 1 was a paper-and-pencil questionnaire study. The questionnaires related to two completely unrelated naturally occurring intergroup contexts. All affect measures were obtained with adjective rating scales. In Study 2, again a paper-and-pencil study, participants' relevant group membership only changed from a subcategory level (East German) to a superordinate level (German). The affective reaction to the initial provocation was assessed with a pictorial core affect measure (cf. chapter 5.5). In the first two studies, the initial and triggering provocations were applied by means of written information participants received in the questionnaires. The next two studies were conducted in the laboratory, they employed a minimal group procedure (Tajfel et al., 1971). Slightly varied initial provocations across studies were not group-based but directed at the individual participant. Specifically, an illegitimate action of the experimenter resulted in a negative outcome for participants. The triggering provocation related to participants' minimal ingroup. Across studies, verbal and pictorial core affect measures assessed whether the initial provocation was successful. The laboratory studies allowed to employ measures of actual behavior instead of rating scales measuring behavioral intentions.

4 EMPIRICAL EVIDENCE FROM A QUESTIONNAIRE STUDY

The interactively produced aggressive behavior in response to the combined effect of a strong initial provocation and a subsequent trivial triggering provocation has been demonstrated in interpersonal aggression research (Pedersen et al., 2000). The purpose of Study 1, which encompassed two questionnaires, was to produce a similar effect in a naturally occurring intergroup context. In the first questionnaire, participants were addressed as Europeans as opposed to US-Americans, in the second questionnaire as members of the young generation as opposed to the elderly. Many cues were placed in the material that made the respective group membership salient. It was assumed that flexible changes in self-categorization would be performed easily. Consequently, participants were expected to perceive, experience, and act based on the currently salient group membership. Participants in the provocation-trigger condition were expected to display higher levels of outgroup derogation than participants in the other conditions. To the extent that triggered displacement based on priming effects, previously provoked participants should also judge a subsequent trigger more negatively. The second intergroup relation would thus be appraised more negatively in the provocation-trigger condition than in the other conditions. Group-based anger following the trigger manipulation was similarly expected only to occur in the provocation-trigger condition. The contrast effects were particularly expected for those participants who were sufficiently identified with their own social category (cf. Yzerbyt et al., 2003). The interactive effect of both manipulations on outgroup derogation is hypothesized to be mediated by the group-based anger experienced after the second manipulation.

4.1 Method

Participants and Design. Forty students from the Friedrich-Schiller-University Jena, volunteered to take part in the study in return for a bar of chocolate. Twenty-three participants were female, 16 male, 1 participant gave diverging answers in the two questionnaires, thus, the participant's gender cannot be determined. Participants ranged in age from 19 to 28 years (M = 22.03, SD = 2.43). In the 2 (provocation, no provocation) × 2 (trigger, no trigger) between-subjects design, each cell contained 10 participants.

Procedure. The first questionnaire broached the issue of European–US-American relations. In the provoking conditions, a report informed participants about US-American measures in the so-called "war against terror", including a vivid and extensive description of

the outrageous torments that have been inflicted on a Canadian citizen of Syrian descent. To establish the European–US-American intergroup context, the report further mentioned European's criticism of the Bush administration's anti-terrorism measures. It closed with an account of hindrances towards Europeans that resulted from the Patriot Act, it portrayed how European business-men and tourists have been arbitrarily imprisoned, subjected to interrogation, and, finally, to deportation. In contrast, the non-provoking conditions reproduced the events on and surrounding D-Day on the occasion of the 60th anniversary of the invasion of Normandy by the Allied Forces on June 6, 1944. The report emphasized the US-American contribution to these events and the importance for European history. Flags were printed on top of each page of the questionnaires ("Stars and Stripes" and the European flag) to subtly increase the salience of the current intergroup context.

Six filler items diverging depending on the level of provocation served to maintain the cover-story by assessing participants' knowledge and at the same time they served to increase the salience of the particular intergroup context (e.g., "I know reports from Europeans concerning arbitrariness of American authorities."[5] and "I already knew that thousands of US-soldiers died in the course of the liberation of Europe." in the provoking and non-provoking conditions, respectively; see Appendix for the full scale). Rumination was inconspicuously encouraged in the provocation conditions by asking questions about sensitive aspects mentioned in the report; the items were not analyzed.

Whether the manipulation of affect by the provocation was successful was measured by 10 categorical emotional adjectives. Participants rated how much they experienced each emotional quality when thinking about what they had read. Four items assessed anger ("outraged", "indignant", "furious", "angry"), three items assessed dejection ("sad", "uneasy", "dejected"), and three items assessed positive emotions ("optimistic", "hopeful", "confident"). The respective items were averaged to form composite scores with high reliabilities, Cronbach's $\alpha = .92$, $\alpha = .90$, and $\alpha = .90$ for anger, dejection, and positive emotions, respectively. Anger and dejection were significantly correlated, $r(39) = .44$, $p < .01$. The positive emotions index was marginally correlated with anger, $r(39) = -.30$, $p = .06$, and uncorrelated with dejection, $r(39) = -.14$, $p = .41$.

[5] All items, as reported in this thesis, were translated from German into English.

Finally, three items measured the identification with Europe. One item straightforwardly asked for identification ("I identify with Europe."), the other two items assessed the affective evaluation of being European ("I like being European.", "I consider it positive to be European."). All three items were averaged to form a composite identification index, Cronbach's $\alpha = .89$. All items of the first questionnaire were rated on 9-point Likert-type scales. The filler scales and the identification scale ranged from 1 (*not true at all*) to 9 (*absolutely true*), the categorical emotion scale ranged from 1 (*not at all*) to 9 (*very much*). Participants worked on the questionnaire individually and returned it to the experimenter once they were finished. Then, they received the second questionnaire.

The second questionnaire addressed the student participants as members of the young generation as opposed to members of the older generation. Participants read a description of a fictitious residential home for the elderly as could have been found in the feature pages of a newspaper. Contrary to the prevalent notion of rather bleak institutions, this home for the elderly offered a variety of activities and services. A whole range of pets and animals was also said to live on the estate. In the triggering conditions, inhabitants were described to immoderately indulge in the amenities offered with a scarce interest in giving employees a hand maintaining the large garden or taking care of the animals. On top of this, the place was allegedly financed by taxes. In the non-triggering conditions, inhabitants were appreciative and grateful, they gladly worked in the stables and in the garden, and it was their relatives who paid for this unusual accommodation.

Agreement with statements demanding outgroup derogating measures was assessed by three items ("The payments that pensioners receive should be curtailed.", "In support of our solidary community, the pensioners also have to cut back, eventually.", "Early retirees should suffer financial forfeit."; Cronbach's $\alpha = .83$). Two items assessed perceived threat ("The older generation's pretensions threaten the younger people's future.", "The older generation is enjoying prosperity that is not affordable."; Cronbach's $\alpha = .75$). Perceived threat assessed an appraisal that related quite directly to the intergroup relation. Outgroup derogation items and perceived threat items were mixed within one scale. Instructions to the scale stressed the intergroup context by addressing participants as members of the younger generation.

Next, participants reported their affective reaction to the description of the residential home for the elderly. Again, the majority of the categorical emotions were negative in

valence, two items assessed anger ("angry", "outraged"; Cronbach's $\alpha = .92$), and three items assessed dejection ("worried", "depressed", "scared"; Cronbach's $\alpha = .73$). Another three items assessed positive emotions ("happy", "relieved", "optimistic"; Cronbach's $\alpha = .72$). It has to be noted that for the negative emotions scores were generally quite low and the distributions were positively skewed (modes = 1). Not only both negative emotion indices were highly significantly correlated, $r(39)_{\text{anger-dejection}} = .66$, $p < .001$, but each was also significantly correlated with the positive emotions index, $r(39)_{\text{anger-positive emotions}} = -.49$, $p < .01$, and $r(39)_{\text{dejection-positive emotions}} = -.47$, $p < .01$.

Since the intergroup context was different from the one in the first questionnaire, participants indicated how much they identified with the young generation. Six items tapped two different aspects of identification, namely membership ("I see myself as a member of the young generation.", "I feel part of the young generation.", "I identify with today's young generation.") and evaluation ("I like being part of today's young generation.", "I am glad to belong to precisely this young generation.", "I appreciate to belong to today's young generation."). All items were averaged to form a single index of identification with the young generation with sufficient reliability, Cronbach's $\alpha = .80$.

The last scale addressed the perceived appropriateness of the living conditions in the residential home for the elderly. This scale tapped the appraised legitimacy of the status quo although not in relative terms but relating to the absolute outcome for the outgroup. SIT nominated perceived legitimacy as a pivotal feature with regard to the evaluation of the intergroup relation. Appraisal theories of emotion find legitimacy to be one critical appraisal dimension for anger to occur (Frijda et al., 1989; Roseman, Spindel, & Jose, 1990). The perceived inappropriateness reflected a moral judgment. Participants indicated their judgment on four items ("It is egregious that pensioners are enjoying such prosperity.", "All pensioners should be allowed for a live such as on the Kastanienhof."[6], reverse coded, "I perceive it as provocative that pensioners are indulging themselves in such a manner.", "It is appropriate that as many amenities as possible are made available to pensioners.", reverse coded). After reverse coding the positively phrased items so that higher scores indicated stronger judgments of inappropriateness the four items were averaged to form a composite score of inappropriateness judgment with satisfactorily reliability, Cronbach's $\alpha = .78$. To disguise the relatedness of both questionnaires and to prevent distortion of the assessment of trigger-

[6] "Kastanienhof" was the name provided for the fictitious residential home for the elderly.

elicited affect by using the exact same format for the emotion scales twice the second questionnaire exclusively used 7-point rating scales. The poles always read *not true at all* and *absolutely true* except for the emotion scale that was again labeled *not at all* and *very much* for the lower and upper pole, respectively. Additionally, different numbers of items were included in the emotion scales and the assortments of specific adjectives were only partially overlapping.

4.2 Results and Discussion

Checking for multivariate outliers, variables included in the analysis were outgroup derogation, inappropriateness judgment, perceived threat, identification with the young generation, and trigger-elicited anger. One multivariate outlier was identified using Mahalanobis distance with a criterion $\alpha = .001$, critical $\chi^2(5, N = 39) = 20.515$. Except for outgroup derogation, all variables distinguished the outlier from the other cases. Therefore, this participant was excluded from further analyses.

Manipulation check provocation-elicited affect. Provocation-elicited affect indices were subjected to independent *t* tests in order to investigate how they were influenced by provocation. The provoking conditions' mean for anger exceeded the non-provoking conditions' mean, $t(37) = 4.85$, $p < .001$, d[7] $= 1.59$, indicating an effective manipulation (cf. Table 1 for means and standard deviations). Furthermore, the provocation and no provocation means differed statistically significantly on the measure of positive emotions, $t(37) = -4.69$, $p < .001$, $d = -1.54$. Thus, the provocation manipulation not only evoked anger in the provocation conditions, but at the same time it reduced levels of positive emotions compared with participants in the no provocation conditions. Both effects were comparable regarding magnitude of the effect. Yet, in line with the emotion-specificity hypothesis, there was no statistically significant difference between the provocation and the no provocation conditions on the dejection measure, $t < 1$[8]. Apparently, the initial manipulation did not impact

[7] Cohen's $d = M_1 - M_2 / [(\sigma_1^2 + \sigma_2^2)/2]^{0.5}$ (Cohen, 1988). Cohen (1988) defined effect sizes of 0.2, 0.5, and 0.8 as small, medium, and large, respectively.

[8] For test statistics (t, F) < 1 no effect size measures are reported. Assessing the magnitude of standardized mean differences is not informative when the observed differences in means are highly likely due to chance. Equally unreasonable would be assessing the strength of the relationship between an effect (main effect, interaction effect, etc.) and a dependent variable when the reliability of the relationship is extremely low.

participants' affective reaction on a general level, differences between conditions did not occur for each specific categorical emotion.

Table 1. Means and standard deviations for provocation-elicited emotions and identification with Europe separately for both provocation conditions (Study 1).

	provocation	no provocation
anger	6.59 (2.17)	3.52 (1.76)
dejection	4.85 (2.05)	4.61 (2.26)
positive emotions	2.16 (1.64)	4.86 (1.95)
EU identification	7.05 (1.45)	7.60 (1.26)

Note. Standard deviations are specified in brackets.

Identification as European. Following results from Kessler and Hollbach (2005), identification as European should be higher in the provocation than in the no provocation conditions, because the provoking report induced anger towards the outgroup whereas the non-provoking report did not. The independent sample *t* test however revealed no statistically significant difference between provoked and non-provoked participants, $t(37) = -1.25$, $p = .22$, $d = -0.40$. Identification as European was across conditions well above the mid-point of the scale, $t(19) = 6.33$, $p < .001$, $d = 1.42$[9] for the provocation and $t(18) = 8.95$, $p < .001$, $d = 2.06$ for the no provocation conditions (cf. Table 1 for means and standard deviations). The generally high level of identification as European may account for the absence of statistically significant correlations of identification with the provocation-related emotion indices, $r(39) = -.22$, $p = .18$ for anger, $r(39) = -.09$, $p = .59$ for dejection, and $r(39) = .03$, $p = .87$ for the positive emotions. An alternative interpretation is however that the emotion ratings did not reflect group-based experiential knowledge but rather semantic knowledge (cf. Robinson & Clore, 2002). A third possibility is, that the report affected participants' personal sense of morality. Yet, whether the initial provocation is person-based or group-based is conceptually no important distinction.

[9] For comparisons of sample means with specific scale points, the following formula was used to compute Cohen's *d*, $d = M - C / \sigma$, where C is the specified scale point, M is the population mean, and σ the population standard deviation (Cohen, 1988).

Planned contrast analyses

Outgroup derogation. The initial provocation and the trivial triggering provocation were expected to interactively produce a disproportionately aggressive response to the triggering event. The provocation-trigger condition indeed produced significantly higher levels of outgroup derogation than the other three conditions (3 -1 -1 -1), $F(1, 35) = 4.56$, $p = .04$, $\eta_p^2 = .115$[10]. The 1-df test for significant between-group differences unexplained by the focal contrast yielded an $F(1, 35) = 2.21$, $p = .15$, $\eta_p^2 = .059$[11], indicating that indeed the 3 -1 -1 -1 contrast best described the relation between both manipulations and outgroup derogation (cf. Table 2 for means and standard deviations). Triggered displacement of aggression from one intergroup context to a totally unrelated outgroup thus indeed occurred.

Inappropriateness rating. The priming explanation for triggered displaced aggression that subsequent minor provocations are more readily noted and/or interpreted as provoking predicted an interactive effect of both experimental manipulations also for evaluative judgments. Those participants who were first provoked and subsequently encountered a trigger should perceive the living conditions in the residential home for the elderly as more illegitimate, they should score higher on the inappropriateness judgment measure than all other participants. A planned contrast analysis yielded however no significant focal contrast, $F(1, 35) = 1.50$, $p = .23$, $\eta_p^2 = .041$, yet a significant amount of residual variance remained, $F(1, 35) = 5.78$, $p = .02$, $\eta_p^2 = .142$. To explore the observed variance an omnibus F test was conducted. The 2×2 between-subjects analysis of variance (ANOVA) revealed a significant main effect of trigger, $F(1, 35) = 4.76$, $p = .04$, $\eta_p^2 = .120$, both other effects were non-significant, Fs < 1. The triggering information was perceived as more inappropriate in the triggering than in the non-triggering conditions, regardless of the level of provocation (cf. Table 2 for means and standard deviations). The judgment regarding the legitimacy of the conditions in the residential home for the elderly was made independently from prior unrelated incidents. Results are thus not consistent with the priming explanation, the mild

[10] Partial eta squared (η_p^2) denotes the ratio of the variation accounted for by an individual independent variable to the sum of the variation accounted for by the independent variable and the variation unaccounted for by the model as a whole as computed by SPSS 12. Transforming the conventional levels for small, medium, and large effects for Cohen's d, .0099, .0588, and .1379 result for the effect size measure η_p^2 (Cohen, 1988).

[11] Since SPSS 12 provides no partial eta squared (η_p^2) for this test, it was computed as follows (cf. Pierce, Block, & Aguinis, 2004): $\eta_p^2 = SS_{\text{alternative contrasts}} / (SS_{\text{alternative contrasts}} + SS_{\text{error}})$.

provocation was no more readily noted or more harshly judged by provoked participants than by non-provoked participants.

Table 2. Means and standard deviations for the dependent measures separately for all four experimental conditions (Study 1).

	provocation		no provocation	
	trigger	no trigger	trigger	no trigger
outgroup derogation	4.48 (1.56)	2.73 (1.55)	3.52 (0.99)	3.67 (1.76)
inappropriateness judgment	2.95 (1.47)	2.10 (0.85)	2.98 (1.13)	2.17 (1.19)
perceived threat	3.40 (1.97)	2.70 (1.48)	3.00 (1.73)	3.25 (1.32)
trigger-elicited emotions				
anger	1.55 (1.30)	1.00 (0.00)	2.00 (1.25)	1.90 (1.02)
dejection	1.43 (0.89)	1.30 (0.48)	2.70 (1.57)	2.43 (1.19)
positive emotions	4.27 (1.90)	5.63 (0.87)	3.89 (1.05)	4.78 (1.22)
$\text{identification}_{\text{young generation}}$	5.29 (0.86)	4.90 (1.16)	5.17 (0.85)	5.77 (0.73)

Note. Standard deviations are specified in brackets.

Perceived threat. A similar theoretical argument applied to perceived threat as to outgroup derogation and the evaluative inappropriateness judgment, therefore an analogous analysis was conducted. Yet, no contrast was statistically significant, all Fs < 1, indicating that there was no systematic variance in the data (cf. Table 2 for means and standard deviations). Appraisal of the older generation as threatening the young generation was not interactively augmented in the provocation-trigger condition as should have been the case had the first manipulation functioned as a prime.

Trigger-elicited emotions. Following the theoretical argument, affect at this point in time was the result of both the initial strong and the subsequent trivial provocation. Therefore, planned contrast analyses were conducted for the trigger-elicited affect measures (3 -1 -1 -1). Contrary to expectations, the focal contrast for anger was not significant, $F < 1$, but significant amounts of residual variance remained, $F(1, 35) = 5.61$, $p = .02$, $\eta_p^2 = .138$ (cf. Table 2 for means and standard deviations). A similar pattern emerged for the positive

emotions. The focal contrast was not significant, $F(1, 35) = 1.07$, $p = .31$, $\eta_p^2 = .030$, but the test for residual variance revealed substantial unexplained between-group differences, $F(1, 35) = 8.21$, $p < .01$, $\eta_p^2 = .190$. For dejection the focal contrast was marginally significant, $F(1, 35) = 3.17$, $p = .08$, $\eta_p^2 = .083$, with a lower reported mean for dejection in the provocation-trigger condition compared with the other three conditions. However, substantial amounts of residual variance, considerably larger in effect size than the focal contrast, remained, $F(1, 35) = 9.06$, $p < .01$, $\eta_p^2 = .206$. Obviously, the 3 -1 -1 -1 contrast was not appropriate to capture the systematic variance in the data.

As the predicted contrast failed to describe the observed pattern of means for trigger-elicited emotions, omnibus *F* tests were conducted to get a better understanding of the data. 2 × 2 between-subjects ANOVAs revealed that despite the disruptive experimental procedure, the influence of the initial provocation still predominated the second affect measures. For both negative emotion indices, only the main effect provocation was statistically significant, $F(1, 35) = 4.18$, $p = .048$, $\eta_p^2 = .107$ for anger and $F(1, 35) = 11.82$, $p < .01$, $\eta_p^2 = .252$ for dejection, all other Fs < 1. Unexpectedly, non-provoked participants reported significantly higher levels of trigger-elicited anger and dejection than provoked participants – regardless of the level of trigger. Possibly, the provocation manipulation served as a comparison standard so that a contrast effect resulted for provoked participants. In light of the strongly provoking report in the first questionnaire, the irritating information about the fastidious elderly apparently appeared rather negligible. The strong initial provocation thus seems to have functioned as an emotional buffer against negative affective reactions towards the elderly. This is all the more noteworthy in light of the results for the inappropriateness rating that participants did perceive the triggering home for the elderly as more inappropriate than the non-triggering one. Only the positive emotions index demonstrated that the trigger also had some impact on affect experienced after the second manipulation, $F(1, 35) = 7.08$, $p = .012$, $\eta_p^2 = .168$ for the trigger main effect. Participants reported significantly lower levels of positive emotions in the trigger conditions than in the no trigger conditions. The main effect provocation and the interaction of provocation and trigger were not statistically significant, $F(1, 35) = 2.09$, $p = .16$, $\eta_p^2 = .056$ and $F < 1$, respectively. While the triggering depiction failed to increase levels of negative emotions relative to the non-triggering depiction, it did ensue relatively weaker positive emotions. All in all, the strong direct effect of the first experimental manipulation on the second affect measurement was clearly contrary to predictions.

Identification with the young generation. Assuming a successful manipulation of participants' affective reaction to the description of the residential home for the elderly in conjunction with a successful manipulation of provocation-elicited anger, anger towards the elderly and consequently the identification with the young generation (cf. Kessler & Hollbach, 2005) should be higher in the provocation-trigger condition compared with the other three conditions. Therefore, a planned contrast analysis with the focal contrast specified as 3 -1 -1 -1 was also computed for identification with the young generation. However, the focal contrast was not statistically significant, $F < 1$. Substantial between-group differences were not explained by the focal contrast, $F(1, 35) = 4.61$, $p = .04$, $\eta_p^2 = .116$ (cf. Table 2 for means and standard deviations). This is not surprising in light of the results for the trigger-elicited emotions. A subsequently conducted 2×2 ANOVA with provocation and trigger as between-subjects factors however revealed neither main effect statistically significant, Fs(1, 35) < 1.61, ps > .21, η_p^2s < .044. The interaction effect showed a non-significant tendency, $F(1, 35) = 2.85$, $p = .1003$, $\eta_p^2 = .075$. Identification with the young generation was in all conditions above the mid-point of the scale, ts > 2.46, ps < .04, ds > .77.

Regression analyses

Theoretically, the inappropriateness judgment should predict how much trigger-elicited anger is experienced because perception of illegitimacy or unfairness is an important appraisal dimension associated with the emotion of anger (Frijda et al., 1989; Roseman, Spindel, & Jose, 1990). Group-based emotions are further hypothesized to be predicated on identification with the young generation (Smith, 1999). As the inappropriateness judgment is an appraisal that is potentially influenced by the group's needs and goals, though not explicitly relating to them, it might also be dependent on the level of identification with the young generation. Consequently, multiple regression analyses according to Aiken and West (1991) were conducted. Identification with the young generation and the inappropriateness judgment were both z-standardized and an interaction term was computed by multiplying both z-standardized terms. Each trigger-elicited group-based emotion was then regressed on the inappropriateness judgment, identification with the young generation, and both variables' interaction term.

The regression model explained significant amounts of variance in trigger-elicited anger, $R^2 = .562$, $F(3, 35) = 14.98$, $p < .001$. All three predictors were statistically significant, $\beta = .39$, $t(35) = 3.39$, $p = .002$ for identification with the young generation, $\beta = .58$, $t(35) =$

4.90, $p < .001$ for the inappropriateness judgment, and $\beta = .27$, $t(35) = 2.30$, $p = .03$ for the interaction term. The stronger participants identified with the young generation and the more inappropriate they judged the living conditions in the residential home for the elderly to be, the more anger they reported after reading the depiction of the residential home for the elderly. Simple slope analyses[12] for anger investigating the significant interaction term revealed that for highly identified participants judgments as inappropriate highly significantly increased levels of trigger-elicited anger, $\beta = .87$, $t(35) = 6.01$, $p < .001$ (cf. Figure 2). For participants relatively lowly identified the inappropriateness judgment was not significantly associated with trigger-elicited anger, $\beta = .29$, $t(35) = 1.49$, $p = .15$.

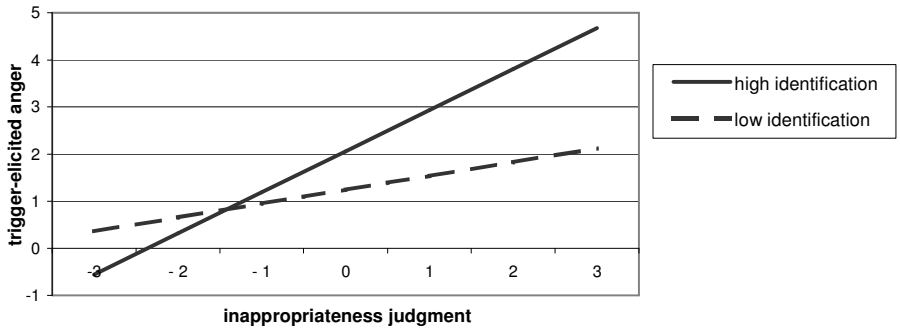

Figure 2. Trigger-elicited anger as a function of inappropriateness judgment and identification with the young generation (Study 1).

Significant amounts of variance were also explained in trigger-elicited dejection and the positive emotions, $R^2 = .272$, $F(3, 35) = 4.37$, $p = .0103$ and $R^2 = .555$, $F(3, 35) = 14.53$, $p < .001$. Identification was however no significant predictor of dejection or the positive emotions, $\beta = .15$ and $\beta = -.03$, respectively, ts < 1. The inappropriateness judgment significantly predicted trigger-elicited dejection, $\beta = .47$, $t(35) = 3.08$, $p = .004$, and the positive trigger-elicited emotions, $\beta = -.79$, $t(35) = -6.55$, $p < .001$. The interaction term was not significant for dejection, $\beta = .13$, $t < 1$, a non-significant tendency was observed for the positive emotions, $\beta = .20$, $t(35) = 1.67$, $p = .103$. Specifically anger could thus be shown to result from appraising situations as inappropriate among participants highly identified.

[12] Simple slopes were computed for identification one standard deviation above and one standard deviation below the mean.

Moderation analyses

A multiple regression analysis according to Aiken and West (1991) was conducted regressing outgroup derogation on both anger terms (after z-standardization) and their interaction term. This analysis investigated how provocation-elicited and trigger-elicited anger were associated with the behavioral measure and whether they interacted. The regression model explained marginally significant amounts of variance in outgroup derogation, $R^2 = .167$, $F(3, 35) = 2.34$, $p = .09$. Provocation-elicited anger did not significantly predict outgroup derogation, $\beta = .07$, $t < 1$, however trigger-elicited anger was a significant predictor, $\beta = .41$, $t(35) = 2.38$, $p = .02$. Higher levels of trigger-elicited anger were associated with higher levels of outgroup derogation. The interaction term was revealed to be a marginally significant predictor, $\beta = .33$, $t(35) = 1.96$, $p = .06$. Exploring the marginally significant interaction term, a simple slope analysis was conducted (cf. Figure 3). The trigger-elicited anger reaction had no impact on outgroup derogation when provocation-elicited anger was low, $\beta = .03$, $t < 1$. In contrast, for high levels of provocation-elicited anger trigger-elicited anger led to an increase in outgroup derogation, $\beta = .79$, $t(35) = 2.58$, $p = .014$. These results corroborate the hypothesis, that the effect of the trivial provocation on derogative behavior towards an outgroup is moderated by a prior anger experience. A strong association of trigger-elicited anger with outgroup derogation only occurred when the aggressor had been angered before.

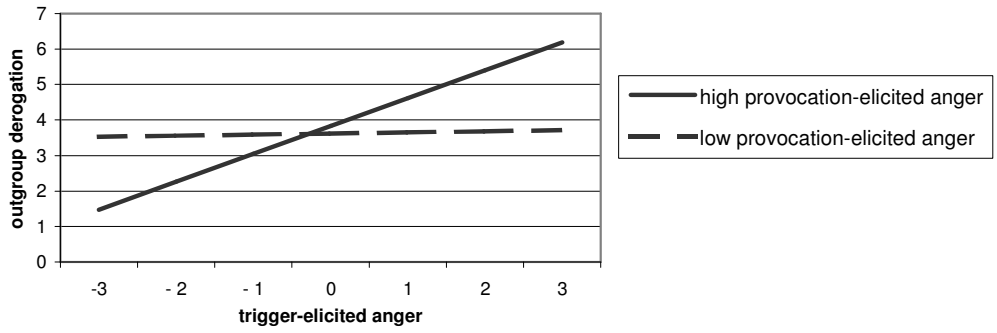

Figure 3. Outgroup derogation as a function of provocation-elicited anger and trigger-elicited anger (Study 1).

Next, perceived threat was regressed on both anger terms (after z-standardization) and their interaction term. The model explained significant amounts of variance in perceived threat, $R^2 = .306$, $F(3, 35) = 5.14$, $p = .005$. Whereas provocation-elicited anger was a non-significant predictor, $\beta = .18$, $t(35) = 1.25$, $p = .22$, trigger-elicited anger significantly

predicted perceived threat, β = .60, $t(35) = 3.81$, $p < .001$. Stronger experiences of trigger-elicited anger were associated with more outgroup derogation. The interaction term also significantly predicted perceived threat, β = .36, $t(35) = 2.36$, $p = .02$. A simple slope analysis for high versus low levels of provocation-elicited anger was computed to explore the significant interaction term (cf. Figure 4). For low provocation-elicited anger trigger-elicited anger and perceived threat were not significantly associated, β = .19, $t(35) = 1.01$, $p = .32$. However, trigger-elicited anger led to a significant increase in perceived threat when provocation-elicited anger was high, β = 1.01, $t(35) = 3.64$, $p < .001$. The effect of trigger-elicited anger on perceived threat was thus moderated by the previous provocation-elicited anger.

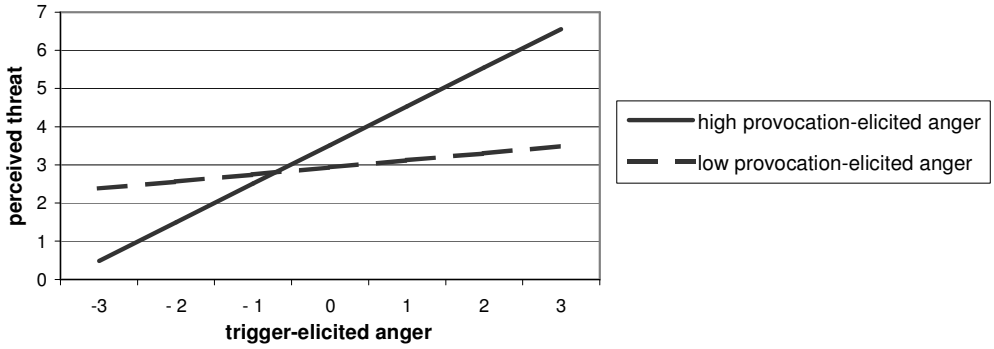

Figure 4. Perceived threat as a function of provocation-elicited anger and trigger-elicited anger (Study 1).

Parallel analyses with dejection terms did not yield significant results. The multiple regression model did not explain significant amounts of variance in outgroup derogation, $R^2 = .154$, $F(3, 35) = 2.12$ $p = .12$. Neither provocation-elicited dejection nor trigger-elicited dejection were significant predictors of outgroup derogation, β = -.18, $t(35) = -1.14$, $p = .26$ and β = .26, $t(35) = 1.60$, $p = .12$. The interaction term was also non-significant, β = .25, $t(35) = 1.56$, $p = .13$. For the next criterion, perceived threat, the regression model again failed to explain significant amounts of variance, $R^2 = .110$, $F(3, 35) = 1.44$, $p = .25$. Provocation-elicited dejection was non-significant, β = -.12, $t < 1$, trigger-elicited dejection showed a non-significant tendency, β = .28, $t(35) = 1.66$, $p = .106$. The interaction term was likewise not significant, β = -.02, $t < 1$.

The third set of moderation analyses was run with the positive emotions terms as predictors. The multiple regression model explained no significant amount of variance in outgroup derogation, $R^2 = .079$, $F < 1$. No positive emotions term significantly predicted

outgroup derogation, βs < | .26 |, *t*s(35) < | 1.44 |, *p*s > .15. For the criterion perceived threat the regression model was non-significant, too, R^2 = .117, $F(3, 35) = 1.55$, $p = .22$. Provocation-elicited positive emotions did not predict perceived threat, β = .02, $t < 1$, however the trigger-elicited positive emotions term was a statistically significant predictor of perceived threat, β = -.35, $t(35) = -2.04$, $p = .049$. Lower levels of trigger-elicited positive emotions were associated with higher levels of perceived threat. The interaction term was not significant, β = -.03, $t < 1$. In sum, the moderating influence of provocation-elicited affect on the association between trigger-elicited affect and threat perceived to be posed by an outgroup as well as derogation of that respective outgroup was specifically observed for anger, neither for dejection nor for the positive emotions index.

Multiple regression analyses

Due to the emotion-specificity demonstrated above, subsequent analyses including affective responses to the experimental manipulations were confined to anger. Both anger and the inappropriateness judgment were tested simultaneously as predictors of outgroup derogation. The first model included only the inappropriateness judgment, it explained a significant amount of variance, R^2 = .208, $F(1, 37) = 9.69$, $p < .01$, the inappropriateness judgment significantly predicted outgroup derogation, β = .46, $t(37) = 3.11$, $p < .01$. Entering the three anger measures did not lead to a significant increase of the proportion of variance explained, R^2_{change} = .079 with change in $F(3, 34) = 1.26$, $p = .30$. The first order anger terms did not predict outgroup derogation, β = .07 for provocation-elicited anger and β = .14 for trigger-elicited anger, *t*s < 1, whereas the interaction term of provocation- and trigger-elicited anger was marginally significant, β = .31, $t(34) = 1.94$, $p = .06$. The inappropriateness rating remained a significant predictor of outgroup derogation in the second model, β = .43, $t(34) = 2.39$, $p = .02$. The variance the inappropriateness judgment explained is primarily shared with trigger-elicited anger. Substantial change compared with the regression model including the 3 anger terms only occurred for trigger-elicited anger. Besides, trigger-elicited anger was highly significantly predicted by the inappropriateness judgment.

The above hierarchical regression model was next used to predict perceived threat. The inappropriateness judgment was entered first in a hierarchical model with the criterion perceived threat, the 3 anger terms as a set in the second step. The first model again explained a highly significant amount of variance, R^2 = .336, $F(1, 37) = 18.73$, $p < .001$, the inappropriateness judgment significantly predicted perceived threat, β = .58, $t(37) = 4.33$, $p <$

.001. The anger terms only marginally significantly contributed to the explanation of perceived threat, $R^2_{change} = .119$ in the second model with change in $F(3, 34) = 2.47$, $p = .08$. Provocation-elicited anger was no significant predictor of perceived threat, $\beta = .19$, $t(34) = 1.40$, $p = .17$. Trigger-elicited anger, however, was a marginally significant and the interaction term of provocation- and trigger-elicited anger a significant predictor, $\beta = .30$, $t(34) = 1.74$, $p = .09$ and $\beta = .34$, $t(34) = 2.44$, $p = .02$, respectively. The inappropriateness rating remained a highly significant predictor of perceived threat in the second model, $\beta = .48$, $t(34) = 3.05$, $p < .01$. Accordingly, anger and cognition empirically captured some non-overlapping portions of variance of the criterion perceived threat. The affective route, moderated by provocation-elicited anger, accounted for variance in addition to the variance that was explained by the inappropriateness rating.

The next multiple regression model of outgroup derogation included the inappropriateness rating, perceived threat, and the three anger measures. This model significantly predicted outgroup derogation, $R^2 = .410$, $F(5, 33) = 4.58$, $p < .01$. Notably, the only statistically significant predictor of outgroup derogation in this multiple regression model was perceived threat, $\beta = .47$, $t(33) = 2.62$, $p = .013$, all other ts < 1.08. Perceived threat thus captured the predictive power of the cognitive appraisal as well as that of the anger measures.

Analyses of baseline conditions

The expected mediated moderation could not be shown, the trigger-elicited affect was not interactively produced by both experimental manipulations as predicted. Contrary to predictions, the affective response to the trigger manipulation was more favorable in the provocation conditions than in the no provocation conditions. A main effect of the trigger manipulation was only observed for the positive emotion index.

To advance the understanding of the impact of the trigger manipulation, additional data were collected. Twenty students from the Friedrich-Schiller-University Jena volunteered to take part in the study and also received a bar of chocolate as compensation. The 15 women and 5 men ranged in age from 19 to 27 years ($M = 22.40$, $SD = 2.37$). In the 1×2 (trigger, no trigger) between-subjects design, the provocation manipulation was omitted, each cell

contained 10 participants. With regard to the two demographic variables the subsamples did not differ from one another, $t < 1$ for age and $t(43.00^{13}) = 1.33$, $p = .19$, $d = 0.35$ for gender.

Outgroup derogation did not significantly differ as a function of the trigger manipulation, $t(18) = -1.39$, $p = .18$, $d = -0.66$ (cf. Table 3 for means and standard deviations). Besides, no difference between baseline conditions was observed with regard to the inappropriateness judgment, $t < 1$. The differential perception of the trigger levels that was observed in the experimental conditions of the current study was apparently dependent on a previous provocation manipulation. This demonstrates that the trigger manipulation was indeed trivial. Although both questionnaires were said to be unrelated, the first one apparently served as a comparison standard. Without a prior comparison standard the levels of the trigger manipulation were not judged differentially. A more negative perception of the triggering event compared with the non-triggering event thus did occur and only occurred in conjunction with the first manipulation. Curiously, the comparatively strong provocation as well as the non-provoking first factor level ensued a perception of the trigger as more negative than the no-trigger.

Table 3. Means and standard deviations for the dependent measures in the baseline conditions separately for both trigger conditions (Study 1).

	trigger	no trigger
outgroup derogation	2.80 (1.26)	3.60 (1.31)
inappropriateness judgment	1.80 (0.67)	1.90 (1.11)
perceived threat	2.20 (0.75)	2.78 (1.56)
trigger-elicited emotions		
anger	1.11 (0.22)	1.25 (0.79)
dejection	1.56 (0.55)	1.93 (1.03)
positive emotions	5.90 (0.74)	4.90 (1.66)

Note. Standard deviations are specified in brackets.

[13] Decimals are reported in spite of being nil to indicate that the variances were unequal.

In line with results for the experimental conditions, the baseline conditions did not differ with regard to perceived threat, $t(17) = -1.04$, $p = .31$, $d = -0.51$ (cf. Table 3 for means and standard deviations). As to the affective impact of trigger in the baseline conditions, no difference at all was observed on the anger or on the dejection measure, $t < 1$ for anger and $t(14.08) = -1.01$, $p = .33$, $d = -0.47$ for dejection. The positive emotions index showed a marginally significant effect, $t(18) = 1.74$, $p = .098$, $d = 0.82$. The direction of this effect was however reversed compared with the trigger main effect observed in the former 2×2 ANOVA for the experimental conditions. Participants in the baseline conditions reported higher levels of positive affect after learning about the affluent residential home for the elderly as compared with the nice but comparatively modest one. Although only marginally significant, the effect size for positive emotions together with the descriptively more favorable scores for outgroup derogation and perceived threat in the triggering condition as compared with the non-triggering condition suggested an unexpected interpretation. In the baseline conditions, participants may have been more pleased with the triggering manipulation than with the non-triggering manipulation. The participants actually seemed happy for the elderly when they had not been previously provoked.

4.3 Summary

Triggered displacement of outgroup derogation was predicted to result interactively from a comparatively strong initial provocation and a subsequent trivial provocation. Indeed, outgroup derogation was significantly stronger in the provocation-trigger condition than in the other three conditions.

Anger- and dejection-related emotions were expected to relate differentially to behavioral tendencies towards the outgroup and to the threat appraisal. Trigger-elicited anger and dejection were clearly not interchangeable with regard to their relation to outgroup derogation and perception of the outgroup as threatening. At the same time, absence of positive emotions did not show the same effects as anger. For group-based anger, specifically, a moderation of the effect of trigger-elicited anger on outgroup derogation and on perceived threat by provocation-elicited anger was demonstrated.

The current study did however not reveal the predicted mediation of the moderated effect of the trigger manipulation on outgroup derogation by trigger-elicited anger. This failure is primarily due to the fact that both manipulations related to each other quite contrary to expectations. Instead of enhanced negative affective reactions to the trigger resulting from

the initial provocation, a contrast effect occurred. Apparently, the trigger was judged against the comparison standard of the initial provocation so that the transgressions by the fastidious elderly appeared rather negligible. The trigger did not result in significantly more negative affective reactions than the non-triggering manipulation. Affective reactions to the trigger were primarily determined by the provocation manipulation. Participants in the non-provoking conditions scored significantly higher on both trigger-elicited negative emotions than participants in the provoking conditions. It is conceivable that this contrast effect was facilitated by the repeated use of categorical emotion rating scales.

The provoking level of the first manipulation hence fulfilled a buffering effect against negative affective reactions to the triggering depiction of the luxurious home for the elderly. This interpretation is based on the observation that the triggering manipulation was indeed appraised as more inappropriate than the non-triggering manipulation, but only when it was preceded by an experimental treatment (i.e., a provocation or no provocation treatment as opposed to no treatment in the baseline conditions). When encountering the trigger without first working on the provocation questionnaire, participants did not judge the inappropriateness of both levels of the trigger differently. Apparently, the provocation did influence the subsequent judgment of on unrelated incident, possibly by means of priming, but independent of the level of provocation. Although the focus in the non-provoking report dealing with D-Day had been on the positive outcomes, it also mentioned for example the death of many soldiers, thus potentially also activating negative cognitive representations. Therefore, similar priming effects may have occurred in the provoking and non-provoking conditions.

Although higher levels of provocation-elicited anger were observed in the provocation conditions than in the no provocation conditions and level of identification as European was high across conditions, it may have been the case, that the manipulation affected participants on a personal instead of on the European group level. This distinction is not supposed to be significant, though, when the initial provocation is concerned. Still, a further possibility is that participants answered the provocation affect measure according to naïve theories or situation-specific beliefs, that is, beliefs about emotions that are likely to be elicited in a particular type of situation (Robinson & Clore, 2002). Hence, instead of genuine affective experience provocation-elicited affect scores may reflect semantic knowledge. Trigger-elicited anger instead, unlike the other trigger-elicited emotions, was highly significantly associated with identification with the respective ingroup.

Study 1 provided first evidence that the affective route via group-based anger contributes to the explanation of outgroup derogation and also of appraisal of the intergroup relation. Much variance that trigger-elicited anger explained in outgroup derogation and perceived threat, respectively, was shared with the inappropriateness judgment, but particularly the moderated effect explained unique variance. In the second study, I sought to replicate the triggered displacement of outgroup derogation and further investigate the possibility of mediation by group-based anger in different intergroup contexts. Additionally, a different response format was selected for the first affective measurement. Thus, methodological associations between the two affect measures and participants' potential attempts to correct for suspected influences while working on the second questionnaire (Berkowitz, Jaffee, Jo, & Troccoli, 2000) should be reduced. The next chapter deals explicitly with measurement of affect before Study 2 is presented in chapter 6.

5 MEASUREMENT OF AFFECT

An exhaustive discussion of the conceptualization of emotion or affect is clearly far beyond the scope of the present dissertation (see e.g., Russell & Barrett, 1999, for a review). Yet, investigating the role of group-based anger in the generation of outgroup derogation necessitates careful consideration of the measure employed to assess participants' level of anger. The research question, derived in part from intergroup emotion theory (Smith, 1993, 1999), implies a categorical approach to emotion as it was used in Study 1. Categorical emotion scales were also utilized in the relevant literature reviewed in chapters 2.2 and 2.3 (e.g., Bushman et al., 2005; Gordijn et al., 2006; Mackie et al., 2000; Pedersen et al., 2000; Yzerbyt et al., 2003). This is particularly problematic when the same or highly similar scales are employed twice within one experimental session, artificial contrast or assimilation effects may result. Subsequent studies therefore substituted core affect measures for the categorical emotion scales assessing the affective reaction to the provocation manipulation.

5.1 Prototypical Emotional Episodes versus Core Affect

The terms affect and emotion are used in the literature as well as in everyday language to refer to a number of distinguishable concepts (e.g., mood, feeling, prototypical emotional episode, sentiment, core affect, simple evaluative response). For the present purpose it is sufficient to distinguish prototypical emotional episodes from core affect. The concept of prototypical emotional episodes corresponds closely with the categorical approach. Prototypical emotional episodes can be decomposed into the following necessary constituents: particular overt behavior in relation to the object the emotional episode is about, attention towards, appraisal of, and attributions to that object, the subjective experience of having a specific emotion, physiological changes, and, finally, core affect. In spite of apparently distinct categories like anger, fear, and happiness there are no discrete boundaries, membership in emotion categories is rather a matter of degree (Barrett, 2006; Russell & Barrett, 1999).

Core affect is defined as "that neurophysiological state consciously accessible as the slightest raw (nonreflective) feelings evident in moods and emotions" (Russell, 2003, p. 148). Some state of core affect is always present, it can but need not be directed at an object. Core affect corresponds with the dimensional approach to emotion. Two independent dimensions of core affect, (dis)pleasure (which I refer to as valence) and (de)activation (a sense of

mobilization and energy which I refer to as arousal), are subjectively experienced as a single integral blend. The present research is based on the conceptualization of Russell and Barrett (Barrett & Russell, 1999; Russell, 2003; Russell & Barrett, 1999), who convincingly argue that other two-dimensional structures of core affect (Larsen & Diener, 1992; Thayer, 1989; Watson & Tellegen, 1985) are alternative descriptions of the same two-dimensional space (Russell & Barrett, 1999).

Every single categorical emotion can be located in the two-dimensional space constituted by the bipolar dimensions arousal and valence. Anger, for example, is characterized by negative valence and a fairly high level of arousal (cf. Figure 5). While likewise being characterized by negative valence, dejection is distinguished from anger by a low level of arousal. The extent to that anger and dejection are experienced as similar emotional episodes depends on the individual's arousal focus. Arousal focus and valence focus refer to how much an individual attends to the valence and the arousal component of its currently experienced affective state, respectively (Feldman, 1995). Generally, the focus on valence is stronger than the focus on arousal, but in addition to this primacy of valence there are also interindividual differences with regard to the relative emphasis of valence and arousal focus (Barrett, 1998, 2004; Feldman, 1995). For persons with a weak arousal focus the vertical axis of their affective space is considerably shorter than in the depiction in Figure 5. Thus, like-valenced categorical emotions are located in closer proximity.

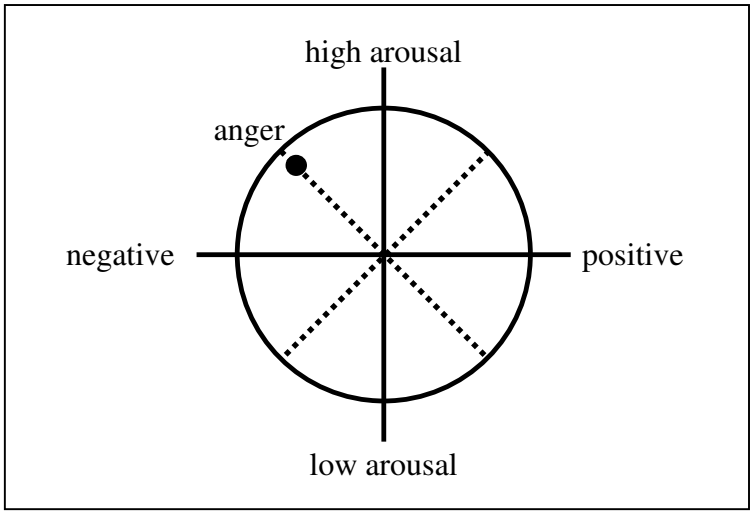

Figure 5. Schematic depiction of the localization of anger in the two-dimensional space build by valence and arousal (modified from Russell & Barrett, 1999).

Prototypical emotional episodes typically start as an abrupt change in core affect caused by an antecedent event and then dissipate after a specific amount of time (Russell, 2003). It should be stressed, however, that core affect is only one of emotional episodes' constituents and that some state of core affect endures, though it changes, when the emotional episode ceases to exist. Prototypical emotional episodes can also be terminated by the onset of another prototypical emotional episode as when anger is replaced by satisfaction, a core affect state with positive valence and low arousal, once the anger-eliciting incident has been appropriately responded to (Maitner et al., in press).

The structure of affect might be better understood when the neurobiological substrates have been identified. It is actually one of the most important neuroscientific questions how affect is generated in the brain. Two opposing landmarks formulated decades ago delimit theorizing in affective neuroscience research. The notion of a single undifferentiated state of physiological arousal as proposed by Schachter and Singer (1962) did not receive empirical support. At the same time, the notion that discrete emotions each have a unique and invariant physiological pattern (James, 1884) most probably has to be rejected. It is highly unlikely that distinct and reliable patterns will be identified that represent discrete emotions. The debate about emotion-specific neurophysiology has not finally been settled, however, results are inconsistent (see Cacioppo, Klein, Berntson, & Hatfield, 1993; Zajonc & McIntosh, 1992, for reviews). This debate taps one fundamental question of the conceptualization of emotions that is whether or not emotions are natural kinds (Barrett, 2006). A natural kind view of emotions holds that all experiences of anger belong to a shared category that is distinctly different from other categories like, for example, sadness and fear. Instances within each category proposedly possess the same set of properties and features that systematically co-occur.

5.2 Self-Report versus other Affect Measures

Prototypical emotional episodes are assumed to involve a number of necessary constituents. Yet, how the different constituents are related and, specifically, which constituent is most closely linked to the action tendencies or whether the associations between the different components are differentially strong at all are questions to be resolved by future research. The studies presented here relied on self-report, thus addressing the subjective experience of the emotional episode. Other measurement options like observational techniques (e.g., coding facial expression) or physiological reactivity

recordings likewise only assess single components of the complex emotional episode. Furthermore, observational techniques are better suited for research with a stronger interactive character than for paper-pencil or computer-based studies in which participants individually work on the research material as these generally do not elicit noteworthy quantities of observable behavior. Besides, expression of anger in particular is restricted by social norms so that participants are expected to be motivated to control observable signs of anger experiences. Generally, display rules (e.g., Ekman, 1972) constrain the validity of data obtained by observational techniques. Assessment of physiological reactivity on the other hand is highly obtrusive. Furthermore, physiological measures are problematic with regard to the interpretability of the results. It is quite unclear, what measurable physiological changes alone actually indicate with respect to the emotional episode. Assessment of the subjective experience indicated in self-reports potentially suffers from cognitive distortion. People have naïve theories and hold subjective beliefs about which emotions apply to which kind of situation (Robinson & Clore, 2002). Furthermore, participants may even give willfully incorrect reports because of concerns about social desirability or the experimenter's expectations. Methodological problems that pertain particularly to self-reports are, for example, discussed by Schwarz (1999).

Traditional emotional adjective rating scales were complemented in Studies 2 through 4 by core affect measures of varying formats. The core affect measure was always employed in association with the first experimental manipulation. The first affect measurement primarily functioned as a manipulation check, the second assessment of affect was a dependent variable. Although conceptually the core affect dimensions represent each and every particular emotional quality, assessment of anger may be more reliable when participants rate their subjectively experienced anger as opposed to rating their current level of arousal and the perceived valence of their current affective state. Problems with self-reports arise particularly with regard to arousal, people are much less used to explicitly state their current state of arousal than to provide information regarding their affective valence or specific emotions. On the other hand, adjective rating scales are much more prone to voluntary distortion motivated by social desirability concerns.

A second argument, at least as substantial as the first, for using the core affect measure for the first assessment of affect is to prevent participants from labeling their affective state in terms of specific emotions. Assessment of core affect does not require participants to categorize their affective state. Though participants were required to

introspect, they did not necessarily think about their affect in terms of anger. Asking participants to rate how strongly they currently experience a whole range of specific emotions might promote a dissipation or even a dissociation, because people strive to correct for suspected influences through incidental affect (Berkowitz et al., 2000), even in an emotion-specific manner (DeSteno, Petty, Wegener, & Rucker, 2000, study 4; Lambert, Khan, Lickel, & Fricke, 1997). A final argument for using different scales for the two measurement points is that the relatedness of the ostensibly independent studies was further disguised.

Another option to circumvent some of the methodological problems would have been to assess the affective reaction to the initial provocation in retrospect at the end of the study (like e.g., Bushman et al., 2005, study 1; Pedersen et al., 2000, study 2; Pedersen et al., in progress, study 2). The compelling advantage of online measurement however is that it is not, at least less severely, contaminated by situation-specific beliefs (Robinson & Clore, 2002). Furthermore, the alleged independence of the two parts of the study would have been impaired by such a procedure. Additionally, answering both affect measures in quick succession might have artificially increased or decreased similarities between the answers.

5.3 Verbal versus Non-Verbal Affect Measures

Difficulties generally associated with verbal measures follow directly from the fact that they rely on language proficiency. They cannot reliably be used with certain participants like children or second-language speakers. Additionally, verbal affect measures suffer more than non-verbal measures from interpersonal differences regarding the ability to reflect and verbalize one's affective state. Whether reported differences are actually due to differences in experiences or to differences in language usage is a fairly unresolved issue (but see Barrett, 2004). Non-verbal pictorial measures generally also require a smaller number of judgments. Unfortunately, no available measure seemed to provide a satisfying account for assessing core affect non-verbally.

The Self Assessment Manikin (SAM) is a non-verbal measure for three affective dimensions (pleasure, arousal, dominance) (Lang, 1980). Judging by face validity and following descriptions from Bradley and Lang (1994), the SAM does not assess the two dimensions arousal and valence independently. Yet, orthogonality of the dimensions is a fundamental requirement. Rather than representing positive and negative valence abstractly the valence measure depicts specific emotional qualities, happiness versus dejection. The

arousal measure on the other hand appears to range between sleepy and furious. Assessed via SAM, the arousal and valence dimensions are confounded.

Consequently, a new pictorial measure was constructed to assess core affect. Two pretests served to validate a German version of the verbal core affect scale from Barrett and Russell (1998) and the new pictorial measure, respectively.

5.4 Pretest: German Core Affect Scale

To my knowledge, no verbal core affect measure has to date been used with German participants. Therefore, a pretest verified the suitability of a German core affect scale. The items were translations from a set that Barrett and Russell (1998) found to be almost orthogonally representing the dimensions activation (i.e., arousal) and pleasantness (i.e., valence). For reasons of parsimony the German adaptation only included the four orthogonal clusters and omitted the additional 28 items resulting from crossed dimensions (i.e., unpleasant-activated, pleasant-deactivated, pleasant-activated, unpleasant-deactivated). Besides, the translation was not exactly literal, but guided by methodological considerations. Specifically, the deviations comprise replacement of double-barreled items with single-barreled items and including the same number of items for all clusters. As a result, arousal and valence were each represented by six items, three items for positive valence (e.g., “I am in positive spirits.”), three items for negative valence (e.g., “My mood is bad.”), three items for high arousal (e.g., “I feel full of energy.”), and three items for low arousal (e.g., “My internal engine is running slowly.”) (cf. Appendix for the full scale).

Sixty students from the Friedrich-Schiller-University Jena (38 female, 22 male), aged 18 to 29 (M = 22.33, SD = 2.38), volunteered to answer the questionnaire in exchange for a bar of chocolate. Participants completed the core affect scale under the presumption of taking part in a survey that examined students’ opinion about the introduction of tuition fees. Unusual levels of self-consciousness might have arisen had this pretest been introduced as validating an affect measure. Participants read one of two versions of a forged letter to the editor dealing with students’ protest against tuition fees that had taken place shortly before the pretest was conducted. Half of the participants read a letter that was very supportive of the students. The other half read a harshly criticizing letter, the author argued rather sarcastically that today’s university students valued only what was costly and that they severely lacked self-dependence and motivation. Participants then judged how good each of the 12 statements described their experience after reading the letter to the editor on a 4-point

scale ranging from 1 (*not at all*) via 2 (*not very well*) and 3 (*somewhat*) to 4 (*very well*). After they returned the questionnaire, participants received their compensation, they were thanked and debriefed.

A factor analysis[14] with the extraction method principal axis factoring and the oblique rotation procedure Promax[15] revealed the expected number of factors, the scree test and the eigenvalue > 1 criterion converged on the extraction of two factors. The unrotated factor solution accounted for only 45.86% of the variance[16]. All valence items loaded strongly and exclusively on the first factor (> .60[17]; loadings on the second factor were all < $\left|.15\right|$). The arousal items on the other hand were more problematic. "I am feeling placid." also loaded strongly on the first factor (.62). "My mind is in a quiet state." and "I am feeling full of verve." severely violated the simple structure, loadings were .51 and -.58 on the first factor and .44 and .61 on the second factor, respectively. Only "I feel full of energy." (.64), "I am full of tension." (.57), and "My internal engine is running slowly." (.55) qualified as marker items for the second factor, neither had secondary loadings ≥ .35. Still, the association of "I am full of tension." with valence was far more pronounced than the other two arousal items' associations. On the single item level, "I am full of tension." was significantly correlated with four valence items, bivariate correlations with all valence items ranging from $r(59) = .17$ to $r(60) = .44$. The other two arousal items' bivariate correlations with the valence items were all non-significant, ranging from $r(60) = \left|.004\right|$ to $r(60) = \left|.17\right|$. Therefore, only two items were retained for the arousal dimension ("I feel full of energy.", "My internal engine is running slowly."). The composite measure achieved a rather weak but acceptable reliability, Cronbach's $\alpha = .62$[18]. More satisfactorily was the reliability for valence, Cronbach's $\alpha = .83$ for the full scale. In order to parallel the length of the arousal scale and to get an efficient measure for valence, the index to be used in subsequent studies was formed by averaging only those two items that loaded highest on the valence factor ("I am in positive spirits.", "My mood is bad."). Reliability dropped as a consequence to Cronbach's $\alpha = .72$. The final

[14] The factor analytical method followed recommendations from Russell (2002).

[15] While Promax is an oblique rotation procedure it would still reveal orthogonal factors inasmuch as that fit the simple structure (Russell, 2002).

[16] For the rotated factor solution the percentage of variance accounted for cannot be determined by adding sums of squared loadings because the rotated factors share common variance.

[17] Reported factor loadings are loadings after rotation.

[18] Including "I am full of tension." would actually have decreased reliability of the measure, Cronbach's $\alpha = .59$.

core affect scale thus only contained one item for each of the four poles. However, this is regarded sufficient, since people have difficulties differentially reflecting their affective state and unconfounded verbal expressions for valence and arousal, respectively, are extremely rare. Most importantly, the resulting valence index and the arousal index were statistically independent, $r(60) = .02$, $p = .86$. Although generally more extensive scales are preferable, including more items would have increased the risk of confounding both dimensions.

5.5 Pretest: Pictorial Core Affect Scale

As a consequence of the criticism concerning existing non-verbal measures, new pictorial items were designed to supplement or substitute the verbal core affect scale (see Appendix). The valence item displayed circled plus- and minus-signs of decreasing and increasing strength, respectively. Two bold plus-signs represented the lower pole, two bold minus-signs the upper pole. The mid-point of the 7-point scale was represented by a little square, thus neither representing positive nor negative valence but the center common to both signs. No labels interfered with participants' comprehension, the item was merely introduced by the instruction to mark the one circle that represents best one's current feeling. The arousal scale basically mimicked the appearance of an electrocardiogram. The 7-point scale displayed bent lines ranging from a smooth and shallow wave[19] to a spiky wave with high frequency and high amplitude. Here, the instruction read to mark the one circle that represents best one's current state of arousal.

A pretest was conducted in that the pictorial arousal measure was evaluated by experimentally manipulating physiological arousal. Participants were recruited in an undergraduate psychology class. Twenty-seven females and 5 males volunteered to take part in exchange for partial credit. All participants attested they were healthy, they ranged from 18 to 27 years of age ($M = 20.38$, $SD = 2.21$) Participants came to the lab individually and were randomly assigned to the activation or the relaxation condition. In the activation condition, participants worked out on an exercise bike, doing stationary cycling for 5 minutes. In the relaxation condition, participants were seated on a padded chair and offered a selection of

[19] The depiction is highly schematic. Particularly, the soft curve is clearly dissimilar to naturally occurring electrocardiographic curves. It build loosely on Köhler's (1929) proposition that sensations experienced through different senses are associated with each other. The shapes are thus assumed to resemble the experience of calmness (soft curve) and high arousal (spiky curve). Frequency and amplitude were to enforce these impressions.

relaxation CDs to pick the one they liked best. After the experimenter started the CD-player she asked participants to put on the headset, to make themselves comfortable, close their eyes, and then relax for 5 minutes. In both conditions, the experimenter left the room and returned after the 5 minutes were over, so that participants would not feel uncomfortable in view of the possibility of being watched.

After the experimental manipulation participants indicated their current core affect on the two pictorial measures. The subsequent verbal scale included two items for each core affect dimension (as explicated above). Additionally, three items that directly assessed participants' appraisal of the experimental manipulation and three items that asked for participants' physical state were included as filler items. As in the prior pretest, reliability of the verbal arousal index build through averaging both items was rather weak but still acceptable (Cronbach's $\alpha = .63$). The verbal valence items formed an index with satisfactorily reliability, Cronbach's $\alpha = .80$.

The affective valence remained unaffected by the experimental manipulation as assessed by the verbal measure as well as by the pictorial measure, ts(30) < 1 (cf. Table 4 for means and standard deviations). Participants who worked out on the stationary cycle and participants who had been relaxing did not differ with regard to affective valence.

Table 4. Means and standard deviations for pictorial and verbal core affect measures separately for the activation and the relaxation condition.

	activation	relaxation
valence (pictorial)	3.31 (1.82)	2.94 (1.06)
valence (verbal)	1.65 (0.45)	1.52 (0.77)
arousal (pictorial)	5.13 (1.15)	1.81 (1.11)
arousal (verbal)	3.09 (0.69)	2.19 (0.87)

Note. Standard deviations are specified in brackets. Low valence scores represent positive valence.

For perceived arousal there was however a clear effect of the activity. The mean in the activation condition clearly exceeded the relaxation condition mean, $t(30) = 8.30$, $p < .001$, $d = 2.94$ for the pictorial arousal measure and $t(30) = 3.26$, $p < .01$, $d = 1.15$ for the verbal arousal measure (cf. Table 4 for means and standard deviations). Significantly higher scores

for participants who worked out on the stationary cycle indicate that the new scale indeed measured physiological arousal. The finding, that the effect was stronger for the pictorial than for the verbal arousal measure suggests, that pictorial measures outperform the verbal measures. Correlational evidence further adds to this impression (see Table 5). The association between the corresponding core affect dimensions is descriptively smaller when assessed with the pictorial measures than with the verbal measures. Importantly, in line with the orthogonality requirement, the pictorial arousal scale is not significantly correlated with either valence measure, the same is true for the verbal arousal measure.

Table 5. Bivariate correlations (Pearson's *r*) among pictorial and verbal core affect measures.

	valence (pictorial)	valence (verbal)	arousal (pictorial)	arousal (verbal)
valence (pictorial)	1	.42*	.07	-.16
valence (verbal)		1	.19	-.14
arousal (pictorial)			1	.56**
arousal (verbal)				1

Note. *: significant at $p < .05$; **: significant at $p < .01$.

6 EMPIRICAL EVIDENCE FROM A QUESTIONNAIRE STUDY EMPLOYING A CORE AFFECT SCALE

Study 1 showed the moderating impact of provocation-elicited anger on threat perceived to be posed by an unrelated outgroup and subsequent derogation of that outgroup. The second questionnaire study implemented the newly developed pictorial core affect measure to assess the affective reaction to the initial provocation. This less blatant measure was expected to reduce participants' reflection of their current affective state in terms of anger. Participants' attempts to correct for suspected influences (Berkowitz et al., 2000) from their affective reaction to the provocation on their reaction to the trigger should thus be minimized. Moreover, potential associations between both affect measures that are due to methodological artifacts (e.g., contrast effects that may follow from using identical scales twice) should be evaded. The core affect measure thus advanced affect measurement compared with Study 1 insofar as participants were initially not explicitly prompted to reflect how much anger they felt. Participants who were provoked were expected to score higher on the arousal measure and to perceive their current affective state as more negatively valenced than participants who were not provoked.

On the other hand, the second questionnaire study acknowledged the probability that the provocation manipulation in Study 1 may not have elicited genuine affective experiences. Therefore, the forthcoming elections for the German Bundestag (Germany's national parliament) and the election campaigns constituted the setting for the provocation factor. At the time the study was conducted the topic was somewhat emotionally charged. Study 2 aimed at conceptually replicating the triggered displacement of outgroup derogation observed in Study 1 within different intergroup contexts. Trigger-elicited anger was hypothesized to mediate the interactive effect of both provocations on outgroup derogation. Participants' salient ingroup did not completely shift between provocation and trigger, it only changed from a subcategory level (East German) to the superordinate level (German).

One limitation of Study 1 concerned the fact that the behavioral measure was confined to outgroup derogation. On the basis of Study 1 it could not be concluded whether the interactive effect of provocation and trigger pertains specifically to explicitly negative treatment of the outgroup. The behavioral measure in Study 2 therefore also incorporated prosocial behavior items. Denying prosocial behavior might also qualify as outgroup derogation provided the default was to exert the specified prosocial behavior. When generally prosocial behavior would be expected, participants in the provocation-trigger condition

would be predicted to show a lesser tendency to display such behaviors than participants in the other three conditions. To the extent, however, that inaction is the default with regard to prosocial behavior, no differences between conditions would be predicted. Technically speaking, whether or not a 3 -1 -1 -1 contrast effect should be expected for prosocial behavior was a question of item difficulty.

6.1 Method

Participants and Design. Sixty-four participants, aged 16 to 69 (M = 34.56, SD = 16.50), 27 female, 37 male, were randomly assigned to conditions in a 2 (provocation, no provocation) × 2 (trigger, no trigger) between-subjects design. In order to address an entrenched East German sample rather than a student sample, an experimenter equipped with a clipboard asked passer-bys in downtown Jena (East Germany) to participate in two short surveys. As compensation, participants took part in a draw where they could win €5,- each.

Procedure. The first experimental manipulation utilized the elections for the German Bundestag and the corresponding election campaigns. In the provoking condition, a brief report reproduced quotes from the chairman of a political party. These quotes contained contemptuous remarks about East German citizens and antidemocratic views. Members of other political parties and the media had reacted fiercely when those utterances became first publicly known. Accordingly, it seemed reasonable to expect genuine affective reactions from East German participants. In the non-provoking condition, a brief report gave facts about media coverage and some statistics concerning the election campaigns.

Before answering the scales, an open response format prompted participants to deliberate about the provocation. They were requested to reflect their own view on the topic at hand and to sketch their thoughts in light of those utterances about the East German citizens and in light of the current election campaigns, respectively. Eight lines covering about half a page signaled that participants were expected to engage in more than just cursory considerations. In Study 1, participants had merely been asked to think about what they had read. The affective impact of the provocation may be enhanced through deliberating about it, the activation level of the associative network may be increased and maintained for a longer duration (Berkowitz, 1990, 1993). In interpersonal triggered displaced aggression research, participants regularly have to wait for a little while during the course of the experimental session while the experimenter had left the room (Pedersen et al., 2000; Vasquez et al., 2005), in another set of studies an experimental factor rumination proved to be critical for triggered

displaced aggression to occur (Bushman et al., 2005). In other words, participants either had time to or were even prompted to contemplate the provocation(s) encountered before they were asked to complete the dependent measures.

Three cognitive appraisal items then assessed how participants perceived politicians and the election campaigns ("The election campaigns equally address East and West German voters.", "Some politicians display arrogance towards the voter.", "During election campaigns politicians' humane insufficiencies become apparent."). Reliability of a composite index was rather low (Cronbach's $\alpha = .45$), the three items were therefore analyzed separately. The 9-point Likert-type scale ranged from 1 (*do not agree at all*) to 9 (*fully agree*). Core affect ratings were obtained by the pictorial measures as described in the pretest (see chapter 5.5). The pictorial measures are single 7-point items assessing the core affect dimensions arousal and valence, respectively. The arousal item mimicked an electrocardiographic curve, the valence item displayed plus- and minus-signs of differential strength (see Appendix). High scores on the core affect items represent high arousal and negative valence, respectively. Arousal and valence were significantly correlated, $r(62) = .41$, $p < .001$. Identification as East German was measured with two items ("I feel as East German.", "I identify with the East Germans."; Cronbach's $\alpha = .84$). Items were rated on a 9-point scale ranging from 1 (*does not apply at all*) to 9 (*fully applies*).

The trigger targeted Germans' relation to foreigners. The brief reports presented to participants in the triggering and the non-triggering conditions reproduced information provided by the German Foreign Office. All information was true, wording followed exactly the one on the official website. The information provided was largely identical for both levels of the trigger factor. The triggering condition additionally stated that a new law facilitated immigration into Germany. This claim was supported by references to some changes in legal regulations. The non-triggering condition by contrast focused on the enriching aspects of foreigners in German society. It stressed those implications of the new law that potentially benefit German citizens.

The affective impact of the trigger manipulation was – like in Study 1 – assessed by a categorical emotion scale. It comprised six items, two each representing anger ("angry", "outraged"; Cronbach's $\alpha = .80$), dejection ("dejected", "sorrowful"; Cronbach's $\alpha = .81$),

and positive emotions ("happy", "cheerful"; Cronbach's $\alpha = .93$)[20]. Instructions to the scale explicitly mentioned the information from the German Foreign Office as the relational object of affect. Ratings were made on a 7-point scale from 1 (*not at all*) to 7 (*very much*). Not surprisingly, both negative emotion indices were highly significantly correlated, $r(49) = .82$, $p < .001$, reflecting a low arousal focus (Feldman, 1995). Neither negative emotion index correlated significantly with the positive emotions index, $r(49)_{\text{anger-positive emotions}} = -.18$, $p = .22$, and $r(48)_{\text{dejection-positive emotions}} = -.17$, $p = .24$.

Three items assessed how threatening participants perceived foreigners to be ("Foreigner have jobs, that Germans should have.", "Foreigners receive money that Germans need more urgently.", both modified from Pettigrew & Meertens (1995), "I appreciate foreigners as an enrichment of our society.", reverse coded). Participants rated their agreement with the statements from 1 (*do not agree at all*) to 7 (*fully agree*). Averaging the threat items produced a highly reliable composite score, Cronbach's $\alpha = .87$. Next, participants rated to what extent foreigners in general possessed the listed bipolar traits, primarily tapping morality ("dishonorable – trustworthy[21]", "indolent – industrious", "calculating – good-natured"; Cronbach's $\alpha = .85$) The mid-point of the scale was zero, representing equal applicability of the opposing attributes to foreigners as a group. Both poles of the 7-point scale were labeled 3, no signs indicated the attributes' valence. Deviations from the mid-point in either direction hence merely reflected increasing applicability of the respective attribute, no evaluations as to the valence of the respective attributes were inherent in the answer format. Order of the opposed desirable and undesirable attributes was balanced. Trait rating scores were coded such that high scores indicate positive evaluations, low scores indicate negative evaluations.

To approximate actual behavior more closely than in Study 1, the current study adapted the response format from Struch and Schwartz (1989) for the central dependent variable outgroup derogation. Participants learned that fellow ingroup members had allegedly performed the particular behaviors listed and were then asked for their judgment regarding

[20] This study suffered from a comparatively large number of missing data. Trigger-elicited emotion indices were computed only for those participants who had both values for the respective index.

[21] This seemingly weird choice results from the translation. The German language has no single word to express "untrustworthy" and a composite was judged rather awkward. It is not to be expected that participants noted this as an inconsistency.

such actions. The response options were 1 (*I agree with the action and would perform it myself in certain conditions.*), 2 (*I agree with the action, but would not perform it myself.*), 3 (*I do not agree with the action, but see it as justifiable.*), and 4 (*I totally reject the action.*). Three items assessed outgroup derogation ("demand that the police be more watchful on foreigners", "demand that the exercise of foreign traditions and cultural practices be more regimented", "dissuade own children from romantic relationships with foreign boys/girls"; Cronbach's $\alpha = .70$). These derogating items were reverse coded so that higher values indicated a stronger inclination to derogate foreigners. Two items assessed prosocial behavior towards foreigners ("intervene, when someone is making hostile remarks about foreigners", "sign a petition for more facilities that help foreigners to integrate"). The composite index obtained only weak reliability, Cronbach's $\alpha = .59$. Since the second questionnaire did not relate to the subcategory East Germans but rather to Germans in general, two items at the end of the second questionnaire assessed the frequency with that participants perceived themselves as East German and German, respectively. This 5-point scale was labeled (1) *never*, (2) *scarcely*, (3) *now and then*, (4) *often*, (5) *always*. Usage of a different response format served to disguise the relatedness of both questionnaires.

Furthermore, the layout of both questionnaires was clearly different to avoid raising suspicion with regard to their relatedness. Deviating from the procedure in Study 1, this time participants received both questionnaires at once. Yet, each questionnaire was first stapled separately. When putting the two together, a colored note was placed on top that declared that two questionnaires were investigating different topics and participants were asked to fill them in sequentially.

Care was taken to confine the questionnaires to a tolerable number of items taking the research setting into account. The inappropriateness scale was therefore omitted, it was less central to the focus of the present thesis. After participants returned the packet of questionnaires, they were thanked and debriefed. On the spot, participants took part in a draw, 10% of all participants won €5,- each. Each lot had contact information printed on its back so that participants knew where to obtain further details on the study. In addition, the URL of the website containing the information about immigrants and immigration into Germany was printed on the lot so that participants also had a low threshold offer to attain in-depth knowledge.

6.2 Results and Discussion

First of all, the data set was checked for multivariate outliers. The variables outgroup derogation, attribute ratings, perceived threat, trigger-elicited anger, and the relative identification as East German were included in the analysis. One multivariate outlier was identified using Mahalanobis distance with a criterion $\alpha = .001$, critical $\chi^2(5, N = 44) = 20.515$. All variables except for outgroup derogation and trigger-elicited anger distinguished the outlier from all other cases, it was excluded from the analyses.

Manipulation check provocation-elicited affect. Neither the valence nor the arousal measure revealed any effect of the initial provocation manipulation, ts(60) < 1 (cf. Table 6 for means and standard deviations). Participants in the provoking conditions did not report higher levels of arousal or more negatively valenced affective states than participants in the non-provoking conditions. In line with these results for core affect, no differences between provoked and non-provoked participants were observed on the appraisal items. Those participants who read the provoking report were no more inclined than those participants who read the neutral report to call politicians arrogant or to regard elections as disclosing humane insufficiencies, ts < 1. The provocation and the no provocation conditions did also not statistically significantly differ regarding participants' view, that East and West German voters are equally addressed by the election campaigns, $t(60) = -1.33$, $p = .19$, $d = -0.34$.

Table 6. Means and standard deviations for provocation-elicited core affect, appraisal of provocation, and identification as East German separately for both provocation conditions (Study 2).

	provocation	no provocation
core affect – valence	3.94 (1.63)	4.13 (1.20)
core affect – arousal	3.06 (1.93)	2.77 (1.56)
arrogant	6.35 (2.17)	6.77 (2.36)
insufficiencies	6.31 (1.87)	6.06 (2.32)
East = West	5.10 (2.18)	5.81 (2.02)
$\text{identification}_{\text{East – German}}$	5.77 (2.44)	6.37 (2.65)

Note. Standard deviations are specified in brackets.

Identification with East Germans. With regard to identification as East German provoked participants should report higher levels of identification than non-provoked participants (cf. Kessler & Hollbach, 2005). Yet, no effect was revealed, $t < 1$. The absence of a statistically significant effect is however consistent with results for core affect. Since participants in the provocation conditions were apparently no more angered than participants in the no provocation conditions, no difference in strength of identification should appear. Strength of identification was marginally significantly above the mid-point of the scale in the provocation conditions, $t(31) = 1.78$, $p = .09$, $d = 0.32$, and statistically significantly above the mid-point of the scale in the no provocation conditions, $t(30) = 2.88$, $p < .01$, $d = 0.52$ (cf. Table 6 for means and standard deviations). Furthermore, identification as East German was highly significantly correlated with perceived arousal, $r(62) = .36$, $p = .004$. Stronger identification was associated with higher levels of arousal. The valence core affect dimension was only marginally significantly correlated with identification, $r(62) = .24$, $p = .058$. The tendency is however in line with expectations, more negative valence was associated with stronger identification.

Planned contrast analyses

Dependent measures. More outgroup derogation was expected in the provocation-trigger condition than in the other three conditions. Consequently, a planned contrast analysis was conducted, the focal contrast was specified as 3 -1 -1 -1. However, the focal contrast was non-significant, at the same time no substantial systematic variance remained, both Fs < 1 (cf. Table 7 for means and standard deviations). Similar results were obtained for the prosocial behavior index, neither the focal contrast nor the test for residual variance were statistically significant, $F < 1$ and $F(1, 53) = 1.90$, $p = .17$, $\eta_p^2 = .035$, respectively. The same 3 -1 -1 -1 contrast that was predicted for the behavioral measures was expected for the attribute ratings of the outgroup. In line with results for outgroup derogation, the planned contrast analysis with the experimental factors showed no indication of any substantial systematic variance for the attribute ratings. The focal contrast was non-significant and so was the test for remaining between-group differences, Fs <1. Across conditions, participants did not differ regarding their behavioral inclinations and how they evaluated foreigners. Finally, perceived threat was predicted to be highest in the provocation-trigger condition. Somewhat surprising in light of the failure to find contrast effects for the attribute ratings and outgroup derogation, the focal contrast was indeed significant for perceived threat, $F(1, 53) = 5.77$, $p = .02$, $\eta_p^2 = .098$, and no significant residual variance remained, $F < 1$. Provocation

and trigger interactively produced an increased level of perceived threat, participants who were first provoked by the politician's contemptuous remark and then encountered a slightly provoking outgroup perceived this outgroup as more threatening than the participants in the other three conditions.

Table 7. Means and standard deviations for the dependent measures and identification separately for all four conditions (Study 2).

	provocation		no provocation	
	trigger	no trigger	trigger	no trigger
outgroup derogation	1.67 (0.52)	1.82 (0.61)	1.79 (0.78)	1.77 (0.75)
prosocial behavior	1.77 (0.68)	1.46 (0.56)	1.82 (0.89)	1.67 (0.56)
attribute ratings	4.73 (0.90)	4.44 (0.92)	4.59 (1.12)	4.67 (0.83)
perceived threat	3.02 (1.62)	2.11 (1.26)	2.12 (1.32)	2.00 (0.88)
trigger-elicited emotions				
anger	2.29 (1.37)	1.42 (0.51)	1.69 (1.18)	2.23 (1.87)
dejection	2.67 (1.44)	1.58 (1.04)	2.17 (1.40)	2.00 (1.50)
positive emotions	2.63 (1.15)	3.41 (1.91)	4.08 (1.84)	2.77 (1.88)
$\text{identification}_{\text{German}}$	4.20 (1.01)	3.64 (1.15)	4.14 (0.95)	4.27 (0.88)
$\text{identification}_{\text{East German – German}}$	-1.14 (1.61)	-0.31 (1.38)	-1.07 (1.00)	-0.64 (1.22)

Note. Standard deviations are specified in brackets.

Provocation and trigger were furthermore hypothesized to interactively produce augmented levels of anger in the provocation-trigger condition, therefore the 3 -1 -1 -1 contrast was again the appropriate test for the trigger-elicited emotions. As it turned out, the focal contrast for anger was not significant, $F(1, 46) = 1.34$, $p = .25$, $\eta_p^2 = .028$, neither was the test for residual variance, $F(1, 46) = 2.45$, $p = .12$, $\eta_p^2 = .051$ (cf. Table 7 for means and standard deviations). Unexpectedly, an analogous focal contrast for dejection showed a non-significant tendency, $F(1, 45) = 2.75$, $p = .104$, $\eta_p^2 = .058$. Participants in the provocation-trigger condition tended to report higher levels of dejection than participants in the other three conditions. The test for residual variance was non-significant, $F(1, 45) = 1.19$, $p = .28$, $\eta_p^2 =$

.026. As to the positive emotions, the focal contrast was not significant, $F(1, 45) = 1.92$, $p = .17$, $\eta_p^2 = .041$, the test for residual variance only slightly missed conventional levels of statistical significance, $F(1, 45) = 3.58$, $p = .06$, $\eta_p^2 = .074$. A subsequent 2×2 between-subjects ANOVA did not reveal a significant main effect of either provocation or trigger, Fs < 1. The interaction effect was however statistically significant, $F(1, 45) = 4.49$, $p = .04$, $\eta_p^2 = .091$. Simple comparisons revealed no statistically significant difference regarding trigger-elicited positive emotions depending on trigger level among provoked participants, $F(1, 45) = 1.19$, $p = .28$, $\eta_p^2 = .026$. Among non-provoked participants however, marginally significantly higher levels of positive emotions were reported in the trigger than in the no trigger condition, $F(1, 45) = 3.74$, $p = .06$, $\eta_p^2 = .077$. It is not surprising that the hypothesized interactive augmentation of trigger-elicited affect did not occur, considering the failure to manipulate levels of arousal and valence by provocation. However, participants' affective response to the trigger also did not reflect the irritating versus neutral level of this factor. All in all, though less so than for outgroup derogation and the attribute ratings, there was apparently little systematic variation of the categorical emotions across conditions.

Self-perception as German. Following Kessler and Hollbach (2005), the reported frequency, how often participants perceived themselves as German, should be higher in the provocation-trigger condition than in the other three conditions assuming that the manipulation of anger had been successful. Not unexpectedly in light of the results for the affective measures, however, the focal contrast for self-perception as German was not significant, $F < 1$, marginally significant amounts of residual variance remained, $F(1, 54) = 3.08$, $p = .09$, $\eta_p^2 = .054$ (cf. Table 7 for means and standard deviations). In a 2×2 between-subjects ANOVA, no effect was statistically significant, Fs$(1, 54) < 1.68$, ps $> .20$, η_p^2s $< .031$.

The correlations of the absolute frequency how often participants perceived themselves as German with the trigger-elicited emotions were not significant, $r(50) = .23$, $p = .11$, $r(49) = .22$, $p = .13$, and $r(49) = .20$, $p = .16$ for anger, dejection, and the positive emotions index, respectively. The relative frequency of self-perception as German[22] was likewise not significantly correlated with any trigger-elicited emotion index, $r(49) = .04$, $p = .79$ for the correlation with anger, $r(48) = .09$, $p = .56$ for the correlation with dejection, and

[22] This index was computed by subtracting the frequency score for perception as German from the frequency score for perception as East German.

$r(48) = -.02$, $p = .88$ for the correlation with the positive emotions index. This absence of statistically significant correlations is consistent with results that anger responses to unfair treatment of others depend not merely on categorization but on the strength of identification with the particular group (Gordijn et al., 2006).

Planned contrast analyses with post-hoc affective factors

Since neither the provocation manipulation nor the trigger manipulation elicited affective reactions as expected, subsequent analyses build on post-hoc affective factors. To this end, a dichotomous factor was computed from the core affect measures. Raw arousal and valence scores were multiplied, centered, and dichotomized via median splits. This product term is problematic inasmuch as the relative influence of arousal and valence cannot be established. Highly aroused participants who reported rather neutral valence received the same score as participants who reported a neutral arousal level and highly negative valence. This is however no extremely severe problem in the case of core affect, the prototypical anger episode has no fixed location in the two-dimensional space build by arousal and valence. Considerable interindividual variation has been found regarding the relative importance of both dimension (Barrett, 1998, 2004; Feldman, 1995), so that specifications of categorical emotions by core affect measures are inherently somewhat diffuse. To ensure that indeed the two levels of the composite core affect variable were significantly different from one another on both core affect dimensions, *t* tests were conducted. Indeed, for those participants who received a high core affect anger score level of arousal was significantly higher than for participants who received a low core affect anger score, $M = 4.41$, $SD = 1.42$ and $M = 1.63$, $SD = 0.93$, respectively, $t(44.70) = 8.51$, $p < .001$, $d = 2.32$. Likewise, level of negative valence was higher for participants who received a high core affect anger score than for participants with a low core affect anger score, $M = 5.00$, $SD = 1.30$ and $M = 3.15$, $SD = 1.06$, respectively, $t(52) = 5.73$, $p < .001$, $d = 1.56$.

An analogous series of computations was conducted for dejection. Scores for the core affect dimension arousal were first reverse coded, then multiplied with valence scores, centered, and finally dichotomized via median split. A *t* test confirmed that participants who received a high score on the core affect index representing dejection reported significantly lower levels of arousal than participants who received a low core affect dejection score, $M = 2.03$, $SD = 1.30$ and $M = 3.70$, $SD = 1.74$, respectively, $t(58.49) = -4.30$, $p < .001$, $d = -1.08$. The *t* test for the valence dimension was likewise significant. Higher negativity scores were

reported by participants who received a high as compared with a low core affect dejection score, $M = 4.62$, $SD = 1.12$ and $M = 3.52$, $SD = 1.48$, respectively, $t(60) = 3.28$, $p < .01$, $d = 0.83$.

Throughout the whole thesis (and almost all related research) positive emotions are not subjected to an equally fine-grained analysis as negative emotions, they are not distinguished according to arousal level. The trigger-elicited positive emotion items are theoretically neither particularly high nor particularly low on the arousal dimension. Consequently, the arousal score could not reasonably be considered in computing a positive emotions post-hoc factor. A dichotomous variable was obtained by median-splitting the centered valence variable[23]. Although the core affect dimensions are conceptualized as independent from each other, participants with a high core affect score representing positive emotions reported less arousal than participants with a low score, $M = 2.57$, $SD = 1.36$ and $M = 4.29$, $SD = 1.79$, respectively, $t(40) = -3.49$, $p < .01$, $d = -1.08$. Participants who received a high score reported significantly more positive affect[24] than participants who received a low score, $M = 5.52$, $SD = 0.68$ and $M = 2.38$, $SD = 0.74$, respectively, $t(40) = 14.33$, $p < .001$, $d = 4.42$. The significant correlation between the arousal and valence core affect measure accounted for the difference on the arousal dimension between participants who received high versus low core affect positive emotions scores. Since no hypotheses pertained to the level of arousal when positive emotions were concerned, the observed difference is rather unproblematic.

The respective second quasi-experimental affective factors were obtained by dichotomizing scores on the corresponding emotion measures following the trigger via median split.[25] The corresponding dichotomous affective measures were then crossed to produce variables with four levels: (1) high core affect score[26]-high trigger-elicited emotions

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[23] Twenty participants received exactly the median score. In order to avoid highly unequal sample sizes, the dichotomized variable was build only for 42 participants.

[24] The valence item had been reverse coded.

[25] It was unnecessary to compute a nested median split for any trigger-elicited emotion variable, because all three were unrelated to the corresponding core affect measure, $r(50) = .04$, $p = .79$, $r(49) = -.08$, $p = .58$, $r(49) = .05$, $p = .72$, for anger, dejection, and positive emotions, respectively.

[26] High versus low core affect score denotes the composite indices computed to represent anger and dejection, respectively. In the case of positive emotions, it refers only to the valence dimension. The positive emotions variables were coded such that high scores represented low levels of positive emotions.

score, (2) high core affect score-low trigger-elicited emotions score, (3) low core affect score-high trigger-elicited emotions score, and (4) low core affect score-low trigger-elicited emotions score.

Entering the post-hoc anger variable as the fixed factor in a planned contrast analysis produced a significant 3 -1 -1 -1 focal contrast for outgroup derogation, $F(1, 39) = 5.69$, $p = .02$, $\eta_p^2 = .127$. Outgroup derogation was stronger when participants were angry after both manipulations as compared with participants who received no or only one high anger score. The focal contrast gave however no fully satisfying account of the data, marginally significant amounts of residual variance remained, $F(1, 39) = 3.17$, $p = .08$, $\eta_p^2 = .075$. An omnibus F test explored the between-group differences. A 2×2 between-subjects ANOVA revealed a statistically significant main effect of core affect anger, $F(1, 39) = 6.45$, $p = .02$, $\eta_p^2 = .142$. Higher levels of core affect anger were associated with a stronger inclination to derogate the outgroup. For trigger-elicited anger only a non-significant tendency for more outgroup derogation when trigger-elicited anger was high as compared with when it was low was observed, $F(1, 39) = 2.70$, $p = .11$, $\eta_p^2 = .065$, the interaction effect was non-significant, $F < 1$. In contrast, for prosocial behavior the focal contrast was not significant, $F < 1$, and no significant amount of residual variance remained, $F(1, 39) = 1.92$, $p = .17$, $\eta_p^2 = .047$. As the experimental factors, the post-hoc anger factor did not reveal the expected contrast effect for the attribute ratings. The focal contrast was not significant, $F < 1$, but a marginally significant amount of residual variance remained, $F(1, 34) = 2.99$, $p = .09$, $\eta_p^2 = .081$. In a 2×2 between-subjects ANOVA, only the core affect anger main effect was marginally significant, $F(1, 34) = 3.02$, $p = .09$, $\eta_p^2 = .81$, for both other effects Fs < 1. Participants with high core affect anger scores rated foreigners less favorably than participants with low core affect anger scores. In line with results for outgroup derogation, participants with two high anger scores perceived more threat posed by foreigners than all other participants, the focal contrast was highly significant, $F(1, 39) = 11.13$, $p = .002$, $\eta_p^2 = .222$. In addition, however, a significant amount of residual variance remained, $F(1, 39) = 7.33$, $p < .05$, $\eta_p^2 = .158$. In the subsequent 2×2 between-subjects ANOVA, the main effect of core affect anger was not statistically significant, $F(1, 39) = 1.51$, $p = .23$, $\eta_p^2 = .037$. For trigger-elicited anger a significant main effect was revealed, $F(1, 39) = 16.96$, $p < .001$, $\eta_p^2 = .303$, the interaction effect was non-significant, $F < 1$. Participants who experienced high trigger-elicited anger perceived more threat than participants whose trigger-elicited anger was low.

The same set of analyses was next run with the post-hoc dejection factor. Consistent with the prediction that specifically anger was associated with outgroup derogation, the 3 -1 -1 -1 focal contrast for outgroup derogation was not significant for dejection, $F < 1$. The test for significant amounts of residual variance only slightly missed conventional levels of significance, $F(1, 45) = 3.98$, $p = .052$, $\eta_p^2 = .081$. A 2×2 between-subjects ANOVA revealed only a marginally significant main effect of trigger-elicited dejection, $F(1, 45) = 3.10$, $p = .09$, $\eta_p^2 = .064$, both other Fs < 1. Participants with high trigger-elicited dejection scores tended more strongly to derogate the outgroup than participants with low trigger-elicited dejection scores. No systematic variance was observed for prosocial behavior, both Fs < 1. Similarly, the attribute ratings showed no significant between-group differences, $F(1, 40) = 2.15$, $p = .15$, $\eta_p^2 = .051$ for the focal contrast and $F < 1$ for the test of residual variance. While the focal contrast was also non-significant for perceived threat, $F < 1$, significant residual variance remained unexplained, $F(1, 45) = 18.59$, $p < .001$, $\eta_p^2 = .292$. In a 2×2 between-subjects ANOVA, a marginally significant main effect of core affect dejection emerged, $F(1, 45) = 2.96$, $p = .09$, $\eta_p^2 = .062$, participants perceived marginally more threat when core affect dejection was low as compared with when it was high. Additionally, the main effect of trigger-elicited dejection was highly significant, $F(1, 45) = 15.80$, $p < .001$, $\eta_p^2 = .260$, participants with high trigger-elicited dejection scores as compared with low scores perceived more threat. No interaction effect occurred, $F < 1$. Dejection as a results of provocation and as a result of trigger had thus opposing effects on the perception of threat

Planned contrast analyses with the positive emotions factor only revealed non-significant focal contrasts for all four dependent variables, Fs < 1, residual variance > 1 remained for outgroup derogation, $F(1, 30) = 1.74$, $p = .20$, $\eta_p^2 = .055$, and for prosocial behavior, $F(1, 30) = 5.15$, $p = .03$, $\eta_p^2 = .147$. Hence, no substantial between-group variation occurred for the attribute ratings and perceived threat. A 2×2 between-subjects ANOVA explored the between-group differences for prosocial behavior. The main effect of core affect valence was not statistically significant, $F < 1$. For trigger-elicited positive emotions, however, a significant main effect was observed, $F(1, 30) = 4.20$, $p = .049$, $\eta_p^2 = .123$. Participants who experienced strong positive emotions were more willing to show prosocial behavior than participants who experienced weak positive emotions. The interaction effect was not statistically significant, $F(1, 30) = 1.10$, $p = .30$, $\eta_p^2 = .035$.

Moderation analysis

Next, regression analyses according to Aiken and West (1991) were conducted to determine the relative contribution of provocation- and trigger-elicited affect and to investigate whether the expected interaction occurred. The core affect product terms representing anger and dejection, respectively, were z-standardized and so were the corresponding indices for trigger-elicited anger and dejection. The corresponding z-standardized variables were multiplied to form interaction terms. All three corresponding terms were entered simultaneously into a multiple regression analysis. On the grounds of the insubstantial association of positive emotions and all dependent variables revealed by the planned contrast analyses reported in the previous section, the positive emotions indices were not further considered. Similarly, no systematic variance of prosocial behavior was observed in the planned contrast analyses with anger and dejection factors. Consequently, no moderation analyses are reported for the criterion prosocial behavior.

The regression model with the three anger-related terms explained significant amounts of variance in outgroup derogation, $R^2 = .166$, $F(3, 46) = 3.06$, $p = .04$. Core affect anger was no significant predictor, $\beta = .09$, $t < 1$, trigger-elicited anger instead statistically significantly predicted outgroup derogation, $\beta = .37$, $t(46) = 2.67$, $p = .011$. Higher levels of trigger-elicited anger were associated with more outgroup derogation. The interaction term did not significantly contribute to the prediction of outgroup derogation, $\beta = .07$, $t < 1$.

The attribute ratings were marginally significantly explained by the anger terms, $R^2 = .149$, $F(3, 41) = 2.39$, $p = .08$. Core affect anger was a marginally significant predictor, $\beta = -.25$, $t(41) = -1.70$, $p = .097$. Higher levels of core affect anger were associated with lower levels of positive attributes participants conceded to foreigners. Trigger-elicited anger and the interaction term showed non-significant tendencies, $\beta = .24$, $t(41) = 1.57$, $p = .12$ and $\beta = -.25$, $t(41) = -1.62$, $p = .11$. Quite remarkable is the positive beta weight for trigger-elicited anger that indicates that stronger anger experiences tended to be associated with a more positive evaluation of foreigners.

The anger regression model explained significant amounts of variance in perceived threat, $R^2 = .270$, $F(3, 46) = 5.66$, $p = .002$. Core affect anger was however no significant predictor, $\beta = .17$, $t(46) = 1.31$, $p = .20$. Trigger-elicited anger statistically significantly predicted perceived threat, $\beta = .36$, $t(46) = 2.76$, $p = .008$. High levels of trigger-elicited anger were associated with more severe perceived threat. The interaction term was

marginally statistically significant, β = .24, $t(46) = 1.85$, $p = .07$. To explore this interaction term, a simple slope analysis was conducted (cf. Figure 6). For high core affect anger trigger-elicited anger highly significantly increased levels of perceived threat, β = .59, $t(46) = 3.76$, $p < .001$, for low core affect anger the association was not significant, β = .13, $t < 1$.

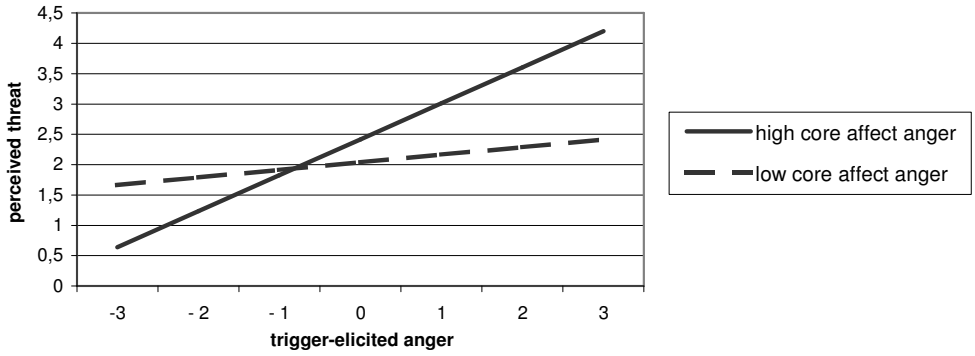

Figure 6. Perceived threat as a function of provocation-elicited core affect anger and trigger-elicited anger (Study 2).

The regression analysis with outgroup derogation as the criterion and the dejection-related terms as predictors yielded results comparable to the analysis with the anger-related terms. The model explained significant amounts of variance, $R^2 = .191$, $F(3, 45) = 3.11$, $p = .02$. Core affect dejection was no significant predictor, β = -.12, $t < 1$. Trigger-elicited dejection significantly predicted outgroup derogation, β = .39, $t(45) = 2.91$, $p = .006$. Stronger feelings of dejection were associated with a stronger inclination to derogate the outgroup. The interaction term was no significant predictor of outgroup derogation, β = -.10, $t < 1$.

The amount of variance in the attribute ratings explained by the dejection regression model was not statistically significant, $R^2 = .132$, $F(3, 40) = 2.03$, $p = .13$. Nevertheless, the core affect dejection term was a significant predictor, β = .31, $t(40) = 2.10$, $p = .04$. A more positive evaluation of foreigners was associated with high levels of core affect dejection. Trigger-elicited dejection was no significant predictor, β = .04, $t < 1$, the dejection interaction term showed a non-significant tendency, β = .23, $t(40) = 1.57$, $p = .12$.

Finally, perceived threat was subjected to the multiple regression analysis with the dejection terms. Surprisingly, the dejection-related terms emerged as more powerful predictors of perceived threat than the anger predictors. The model accounted for highly significant amounts of variance in perceived threat, $R^2 = .429$, $F(3, 45) = 11.29$, $p < .001$. All

three predictors were statistically significant, β = -.24, $t(45) = -2.08$, $p = .04$ for core affect dejection, β = .53, $t(45) = 4.64$, $p < .001$ for trigger-elicited dejection, and β = -.25, $t(45) = -2.19$, $p = .03$ for the interaction term. Note the sign for core affect dejection, indicating a mitigating influence of dejection experienced as a consequence of the provocation manipulation on threat perceived from an unrelated outgroup. A simple slope analysis was conducted to explore the significant interaction term. For high core affect dejection trigger-elicited dejection was not statistically significantly associated with perceived threat, β = .28, $t(45) = 1.66$, $p = .104$. However, for low core affect dejection trigger-elicited dejection was highly significantly associated with an increase in perceived threat, β = .78, $t(45) = 5.02$, $p < .001$ (cf. Figure 7).

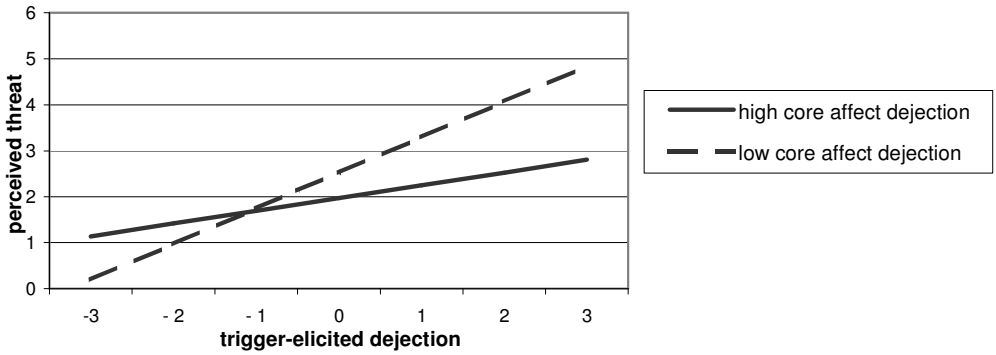

Figure 7. Perceived threat as a function of provocation-elicited core affect dejection and trigger-elicited dejection (Study 2).

Simple linear regression analyses

Simple linear regression analyses investigated whether and how the attribute ratings were associated with perception of threat posed by the outgroup as well as outgroup derogation. Analyses were conducted separately for participants who reported high versus low core affect anger. For high core affect anger the attribute ratings significantly predicted perceived threat, β = -.47, $t(18) = -2.23$, $R^2 = .216$, $F(1, 18) = 4.97$, $p = .04$, and marginally significantly predicted outgroup derogation, β = -.41, $t(18) = -1.93$, $R^2 = .172$, $F(1, 18) = 3.73$, $p = .07$. The less positive the attribute ratings the more threat was perceived and the stronger the inclination to derogate the outgroup. For those participants, however, who experienced low core affect anger, the attribute ratings did not predicted as how threatening the foreigners would be perceived or how strongly outgroup derogation would be endorsed, β = -.01 and β = -.004, respectively, R^2s = .000, Fs < 1.

6.3 Summary

Higher levels of outgroup derogation were expected in the provocation-trigger condition than in the other three conditions. Similar patterns of results were expected to occur for the attribute ratings, perceived threat, and trigger-elicited anger. Empirically the predicted contrast was only observed for perceived threat. Little systematic between-group differences were observed for trigger-elicited affect. The affective measures as well as cognitive appraisal manipulation check items in the first questionnaire indicated that neither experimental manipulation was successful in eliciting the intended affective reaction. Therefore, quasi-experimental factors were substituted for the experimental factors. Indeed, a planned contrast analysis with an index representing the core affect dimensions arousal and valence and trigger-elicited anger, in other words representing anger reactions to both manipulations, revealed higher levels of outgroup derogation and also of perceived threat for participants who scored high on the composite anger index than for all other participants. The predicted contrast was however no parsimonious explanation of the observed between-group differences.

For prosocial behavior and the attribute ratings the predicted post-hoc anger contrast was not significant. In fact, for prosocial behavior the only effect observed was a main effect of trigger-elicited positive emotions. Just as absence of positive emotions did not account for negative treatment of the outgroup, absence of negative emotions did not account for prosocial behavior. Denying an outgroup prosocial behavior can be tantamount to inflicting harm on them but it is not easily compatible with an angered individual's general action tendency which is approach or a move-against tendency.

Moderation analyses revealed that, unlike in Study 1, the effect of trigger-elicited anger on outgroup derogation was not moderated. A moderation was however observed for the criterion perceived threat. Notably, the moderating effect of core affect was reverse for core affect dejection as compared with core affect anger. For high core affect anger, trigger-elicited anger increased perceived threat whereas no significant association existed when core affect anger was low. For high core affect dejection instead trigger-elicited dejection and perceived threat were unrelated, but trigger-elicited dejection significantly increased perceived threat when core affect dejection was low. Presence or absence of positive emotions did not impact on the perception of threat.

With regard to negative evaluations of an outgroup and outgroup derogating behavior other research has shown differential predictors to apply (Struch & Schwartz, 1989). Interestingly, the outgroup attribute ratings were significantly associated with outgroup derogation and perceived threat but only when core affect anger was high.

The failure to find a significant difference between provocation conditions on the core affect measures can plausibly be explained by connectionist models (e.g., McClelland & Rumelhart, 1986; see Read & Miller, 1998, for applications of connectionist models in the realm of social psychology). Particularly the implementation of the open response format that prompted consideration of the election campaigns may have led to widely spreading activation within an associative network that was tapped by the provoking as well as by the non-provoking report. It may have been the case that explicitly mentioning the politician's contemptuous remarks was unnecessary for them to be activated. The non-provoking material may also have activated their representation because they were quite prominent in media coverage and there was a public uproar. The contemptuous remarks were possibly highly accessible at the time the study was conducted. Thus, similar memory contents may have been activated across conditions. Results for the cognitive manipulation check items corroborate this interpretation. The bivariate correlations of the core affect dimensions with identification as East German also imply that the lack of significant between-group differences is not plausibly attributable to an inadequacy of the core affect measure.

Similar reactions to both levels of the trigger manipulation may be a consequence of the particular intergroup context. Levels of xenophobia are non-negligible among the general population in East Germany so that merely mentioning foreigners might have functioned as a triggering event. The minor irritating aspects that were included in the triggering but not in the non-triggering report may not have added substantially to the provocation experienced by merely being exposed to this particular outgroup. Unlike Study 1, trigger-elicited emotions were not determined by provocation. It is conceivable that using dissimilar measures for the two measurement points decreased artificial associations between both scores.

In sum, Studies 1 and 2 provided first evidence that triggered displaced aggression can also be a group-level phenomenon. Participants in the provocation-trigger condition displayed more agreement with statements derogating the elderly, an outgroup completely unrelated to the initial strong provocation, than participants in all other experimental conditions of Study 1. The moderated effect of trigger-elicited anger on perceived threat in both studies demonstrated that appraisal of particular dimensions of intergroup relations as

well as subsequent behavioral intentions towards a naturally occurring group in Study 1 deteriorated substantially when participants were angered by a slightly irritating incident related to that group and had previously experienced anger in an unrelated context.

The fact that such effects could be shown with regard to meaningful societal groups has implications regarding plasticity of attitudes towards outgroups. Unquestionably, participants did have preconceptions towards the particular groups before being exposed to the experimental manipulation. Assuming that no sampling error occurred, the experimental manipulations were sufficient to substantially impact how participants perceived and intended to behave towards the elderly and towards foreigners, respectively. The affective effects on perceived threat and the shared variance of the inappropriateness judgment and trigger-elicited anger in the explanation of perceived threat and outgroup derogation, respectively, illustrate how emotion and cognition are interwoven. Triggered displacement has to be regarded potentially consequential for intergroup relations, particularly to the extent that anger emotions are experienced.

In both studies, trigger-elicited anger and dejection were quite closely related. Such results are less an exception than the rule (see e.g., Berkowitz, 1993). No event or situation is hardly ever uni-dimensional, relations between naturally occurring groups are complex and consequently reasonably engender a mix of emotions, the salience of which may vary across situations. Even in studies in that participants were explicitly instructed to write about an event that had made them very angry participants reported higher levels of sadness on subsequent rating scales than participants in a neutral control condition (DeSteno, Dasgupta, Bartlett, & Cajdric, 2004). Tests statistics were not provided for this comparison, but the pattern of means strongly suggests that the sadness levels statistically significantly differed from each other. Although it is reasonable to assume that participants selected idiosyncratically prototypical anger episodes they still reported increased levels of sadness, too. In light of this, the strong association of anger and dejection in the contexts of Germans' relation to foreigners and young people's relations to the elderly is not particularly surprising. On top of this, the concept of arousal focus can account for the tendency of like-valenced emotions to co-occur (Barrett, 1998). Even so, I want to stress once more that anger and dejection were clearly not interchangeable.

7 EMPIRICAL EVIDENCE FROM MINIMAL GROUP RESEARCH

In the current chapter, two laboratory studies are reported that aimed at a cross-method validation of the results from the questionnaire studies. Participants were categorized into minimal groups (Tajfel et al., 1971). That way, triggered displaced aggression could be tested in an intergroup context where no preconceptions existed. It was assumed that negative appraisal of an outgroup would be easier established for a new group than pre-existing appraisals could be changed for known, naturally occurring groups.

On the other hand, with regard to social discrimination in minimal intergroup relations, the positive-negative asymmetry is a well-established phenomenon (see Mummendey & Otten, 1998, for a review). Mere categorization that led to ingroup favoritism on positive comparison dimensions or with regard to positive resources is not sufficient to elicit ingroup favoritism in the negative domain. This consistent finding implies that for the occurrence of explicitly negative treatment of the outgroup further preconditions need to be given. The current studies investigated whether group-based anger would be sufficient for participants to treat the minimal outgroup explicitly negative.

Laboratory research renders assessment of actual intergroup behavior comparatively easily possible whereas questionnaire studies are largely confined to the assessment of behavioral intentions. Anderson and Bushman (1997) demonstrated specifically for research on aggression that the relations between conceptual variables found in the laboratory indeed generalize to behavior outside the laboratory. In the current line of research, laboratory experiments further seemed a good opportunity to affect participants emotionally. Provided participants believe the social interactions to be unstaged, they are assumed to be less likely than participants who answer questionnaires to resort to situation-specific beliefs.

7.1 Study 3

For the affective route to outgroup derogation it is assumed to be insubstantial whether the initial strong provocation is directed at the group-self or at the personal self. Critical is a triggering provocation on the group level. Provocation manipulations directed at the individual participant can be implemented less conspicuously in laboratory experiments than group-level provocations and they are also more tangible. The assumption that triggered displaced outgroup derogation can base upon a person-directed initial provocation was put to an empirical test. As in the questionnaire studies, participants in the provocation-trigger

condition were expected to exert higher levels of outgroup derogation than the participants in the other conditions. This effect was hypothesized to be mediated by group-based anger.

7.1.1 Method

Participants and Design. Participants were 70 students from the Friedrich-Schiller-University Jena (50 women, 20 men), aged 18 to 27 (M = 22.46, SD = 2.09), who received €5,- in exchange for participation. The 2 (provocation, no provocation) × 2 (trigger, no trigger) between-subjects design assigned participants randomly to conditions. Distribution across cells was almost equal.

Procedure. Experimental sessions were run with single participants. Upon arrival at the laboratory, they were shown at which computer to take a seat. Instructions were standardized and given by the computer instead of the experimenter whenever possible.

Initial instructions informed participants that the current experiments were part of a more comprehensive series investigating cognitive skills. The first part ostensibly assessed verbal problem solving skills and how auditory stimulation impacts on these skills, depending on the subjective evaluation of the stimuli. All participants spent 10 minutes solving anagrams while they were exposed to background noise via headphones. The instructions stressed the importance of working as quickly as possible and solving as many anagrams as possible.

The computer ostensibly determined at random the noise participants would be exposed to during the anagram task. Once participants had started the selection process, they saw labels of different noises flickering on the screen mimicking the spinning wheels of gambling machines in operation. When the flickering stopped the screen read “classical music”. In addition, the instruction to call the experimenter appeared on the screen.

Several characteristics of the task differed between the provoking and the non-provoking conditions. Firstly, in the provocation conditions, the experimenter took a look at the result displayed on the computer screen, then stated aloud, “Classical music? No, that’s too easy.” She rummaged through a stack of CDs, selected the so-called Radio-Medley, and said with a slightly irritated voice “I’ll give you this one.”[27]. The Radio-Medley consisted of 37 catchy German tunes, that were expected to be extremely distracting for verbal tasks

[27] Hardly anybody objected, but if they did the experimenter repeated “Yeah, but that’s too easy.”.

(Martin, Wogalter, & Forlano, 1988). In effect, participants in the provoking conditions were exposed to loud, distracting auditory stimulation illegitimately imposed on them by the experimenter. Secondly, the maximal interval to work on a single anagram was restricted to 40 seconds. In order to be able to maximize the total amount of anagrams solved, participants were offered the possibility to skip an anagram after 20 seconds in case they were not able to solve it. Whenever participants failed to enter the correct answer within 40 seconds or skipped an anagram, the computer slowly displayed a reprimand and the solution before the next anagram appeared on the screen ("You did not make a correct entry! The correct answer is [solution]. Try to answer quickly and correctly."). Besides being potentially quite annoying[28] the reprimand took up time. Thirdly, participants in the provocation conditions received a false feedback after the anagram task that their performance had been bad. The correct number of solved anagrams was stated in order to sustain credibility, but it allegedly corresponded to the lowest quarter of the performance in the sample used to gauge the verbal problem solving task. In sum, the illegitimate aggravation of conditions by the hands of the experimenter defying the computer's random choice of the background noise and the frequent reprimands during the anagram task in conjunction with the negative feedback were supposed to elicit comparatively strong anger. Counterfactual thinking (see e.g., Roese, 1997) was expected to lead to an external attribution of the bad performance. It was assumed that it was easily conceivable that participants' performance would have been much better and the anagram task would have been much less strenuous, had the experimenter played the classical music as she was supposed to.

Participants in the non-provoking conditions listened to calm classical music (the beginning 74 seconds of Haydn's Symphonie Nr. 7 C-Dur "Le Midi" – Adagio repeated several times) played with comfortable volume. Participants were also put under less pressure to solve the anagrams. The maximal interval to work on a single anagram was set to 60 seconds and they could only skip an anagram after 40 seconds had passed. The program moved on directly to the next anagram even after unsolved anagrams, participants in the no provocation conditions were not reprimanded. The bogus feedback informed participants that their performance had been good, it allegedly corresponded to the upper quarter of the performance in the sample used to gauge the task. Since the initial provocation was applied in a face-to-face manner, experimenter-blind procedures where precluded.

[28] Participants frequently sighed or moaned when they learned the correct solution.

After the feedback, four cognitive appraisal items measured how participants evaluated the auditory stimulation (e.g., "I found it hard to think with the background noise.", see Appendix for the full scale; Cronbach's $\alpha = .94$). Mixed with the cognitive appraisal items were the core affect items, the valence and arousal core affect dimension were assessed by two verbal items each (cf. chapter 5.4; Cronbach's $\alpha = .88$ for the valence dimension and $\alpha = .60$ for the arousal dimension). The items were displayed randomly. Participants rated all items on 7-point scales ranging from 1 (*not at all*) to 7 (*absolutely*). The arousal and valence measures were highly correlated, $r(66) = -.61$, $p < .001$.

By means of the next task, participants were classified as sub- versus suprataxators following a minimal group procedure. This alleged trait is a more general concept, modified from the original dot overestimators and underestimators (Tajfel et al., 1971, study 1). The more sophisticated labels and a variety of different judgments (e.g., geographical distance, temporal distance, height of a building, amount of objects) served to increase credibility. The description of the trait stressed its relevance, its stability, and covariance with other personality traits. This information was to enhance perceived significance of group membership and identification with the new social category. Before actually taking the categorization test, participants self-categorized as either supra- or subtaxator following a forced-choice format. Then, they took the test and membership in the category they had chosen themselves was confirmed. This procedure was also implemented to increase identification with the minimal group.

The trigger manipulation was ostensible remarks from former participants. Participants were asked to give information on their subjective conception of this personality trait. The computer displayed a list of text entries that resembled a protocol of an internet chat on the next screen. The comments were preceded by ascending numbers, they were ostensibly the answers previous participants had given. Earlier, participants had had ample chance to notice their own case number 12 that was now highlighted and next to which the cursor was blinking. The instructions what participants were to do were intentionally vague and had only been displayed insufficiently long to be fully read. These inadequate instructions were to induce participants to read the comments of previous participants in order to infer what they were supposed to do. Most content of the text entries was evaluatively neutral, they remarked for example how universal the applicability of this personality trait was. The second to the last entry asked whether one was better than the other, subtaxator or suprataxator. In the triggering conditions, the last entry replied that of

course the actual participant's respective outgroup was better and that the previous participant was obviously a member of the actual participant's ingroup to pose such a stupid question. Additionally, the second to last entry referred to number 2, inducing participants to read that entry as well. Participant number 2 had mocked the respective outgroup. The supratAxators were said to overestimate their own abilities and subtaxators were said to underestimate their inferiority to the supratAxators, respectively. In the non-triggering conditions, the last entry stated that the participant was thrilled by the discovery of this trait and that s/he intended to observe from now on when it applied. Participant number 2 simply stated that it was perfectly reasonable to assume that subtaxators and supratAxators perceive themselves and the world differently.

In line with the cover-story, the core dependent measure involved allocation of noises and level of noise intensity. Participants learned that a subsequent study would investigate the differential impact of particular environmental noises on cognitive performance. The ostensible research question was whether subtaxators and supratAxators are differentially distracted by specific auditory stimuli. Participants than assigned both groups to two specific noise conditions following a forced-choice format, one was called "construction site", the other "meadow in the summer". In brackets, specifications read "jackhammer" and "chirping and rustling of leaves", respectively. Subsequently, participants determined the loudness of noise exposure for the ingroup and for the outgroup by selecting the decibel (dB) level separately for each group. On two 14-point scales participants set the level of noise intensity for participants of their own group and the outgroup in an alleged follow-up experiment between 10 dB and 140 dB. These scales were not anchored verbally. The reason given for this procedure was to be able to implement experimenter-blind conditions. This dependent measure was an adaptation of the aggression measure duration and level of white noise used in interpersonal aggression research (Bushman et al., 2005, study 3; Pedersen et al., in progress, study 1). Importantly, this dependent measure was non-zero-sum, level of noise was set for outgroup members and ingroup members independently.

After the behavioral dependent measure, participants reported their current affective state on a categorical emotion scale. Ratings were made on a 7-point scale ranging from 1 (*not at all*) to 7 (*very much*). Anger was measured by the two items "angry" and "outraged" (Cronbach's $\alpha = .68$), dejection was assessed with the single-item measure "dejected", the positive emotions index was computed by averaging scores for "happy" and "contented"(Cronbach's $\alpha = .85$). The three measures were highly intercorrelated, $r(66) =$

.60, $p < .001$ for anger and dejection, $r(66) = -.62$, $p < .001$ for anger and the positive emotions index, and $r(66) = -.63$, $p < .001$ for dejection and the positive emotions index. Contrary to the affective measures in the questionnaire studies, the trigger emotion scale did not explicitly relate to the intentional object trigger manipulation, because that would have raised doubt as to whether the triggering comments were truly from former participants.

Next, participants rated subtaxators and supratаxators on a number of attributes. Selection of the particular attributes incorporated in the scale was guided by the warmth-competence dichotomy introduced by the stereotype content model (Fiske et al., 2002; Fiske, Xu, Cuddy, & Glick, 1999). In the minimal-group context, there were however no differential hypotheses regarding both dimensions. Ratings were made on 7-point bipolar scales. Opposing attributes were assigned to the poles of the scale that both had the value 3 without evaluatively qualifying signs. The mid-point of the scale was zero, representing equal applicability of the opposing attributes to members of the respective group. Deviations from the mid-point in either direction indicated that the corresponding attribute more strongly characterized the group than the opposing attribute. Order of the opposed desirable and undesirable attributes was balanced. Participants rated first the ingroup and then the outgroup; within groups the pairs of attributes were displayed randomly. An outgroup warmth index was obtained by averaging scores for “tolerant”, “likable”, and “pleasant” (Cronbach’s $\alpha = .77$). An outgroup competence index was obtained by averaging scores for “determined” and “self-confident” (Cronbach’s $\alpha = .83$). Difference indices for both dimensions were computed by first subtracting outgroup scores from the corresponding ingroup scores and subsequently averaging the respective difference scores (Cronbach’s $\alpha = .73$ for Δ warmth and Cronbach’s $\alpha = .88$ for Δ competence). Attribute rating scores were coded such that high scores indicate positive evaluations and low scores indicate negative evaluations.

Identification with the minimal ingroup was measured with two items (“I feel as a subtaxator (supratаxator).”, “I see myself as a subtaxator (supratаxator).”; Cronbach’s $\alpha = .80$). In order to capture possible aggressive tendencies towards the experimenter, participants next evaluated the experimenter (“The experimenter was nice.”, “The experimenter did a good job.”, “I recommend to employ the experimenter for further experiments.”; Cronbach’s $\alpha = .86$). Application of this measure was modified from Bushman et al. (2005, study 1), Pedersen et al. (2000, study 1), and Pedersen et al. (in progress, study 3). Apparently, a negative evaluation would harm the experimenter, precisely her chances for future

employment. Before the final scale, a forced-choice format asked participants to indicate their group membership. This measure ascertained whether participants were able to correctly identify the social category they belonged to. Then, two items measured how strongly participants rejected the minimal categorization; the scale is referred to as the discounting scale ("The test result that I am subtaxator (supprataxator), surprises me." and "The result that I am subtaxator (supprataxator), is in line with my everyday experiences.", reverse coded; Cronbach's $\alpha = .72$). Ratings for the identification, experimenter evaluation, and the discounting scale were made on 7-point scales. Participants indicated on scales ranging from 1 (*do not agree at all*) to 7 (*fully agree*) how much they agreed with the respective statement.

In order to obtain subtle affective manipulation checks, a monitoring measure adapted from Gilbert and colleagues (1995) assessed participants' general affect repeatedly during the experimental session. Measurement points were pre-programmed but allegedly chosen at random by the computer. An orange flash signaled the disruption, participants rated their current affective state on a 9-point affective scale with poles labeled *positive* and *negative*, and afterwards the program proceeded with the same screen that had been displayed before the orange flash.

At the end of the experimental session, participants were thanked, they received their reimbursement, and they were thoroughly debriefed.

7.1.2 Results and Discussion

Variables included in the multivariate outlier analysis were both dB levels, four scores for attribute ratings (two for each group), trigger-elicited anger, evaluation of the experimenter, and identification. No multivariate outliers were found using Mahalanobis distance with a criterion $\alpha = .001$, critical $\chi^2(9, N = 66) = 27.877$. One participant, however, was excluded because she failed to correctly identify her group membership, 3 participants had to be excluded because German was not their mother tongue. Participants' self-categorization was evenly distributed, 35 participants self-categorized as supprataxators, 31 as subtaxators.

Manipulation checks

Manipulation check provocation. With regard to the cognitive appraisal of the initial phase the provocation conditions' mean exceeded the no provocation conditions' mean, $t(64) = 6.45$, $p < .001$, $d = 1.58$ (cf. Table 8 for means and standard deviations), indicating that

more aversive conditions were established in the provocation conditions than in the no provocation conditions. Results for the core affect dimension affective valence corroborate this finding, $t(51.39) = 6.09$, $p < .001$, $d = 1.52$. Higher negative valence was reported in the provocation than in the no provocation conditions. The arousal measure yielded a significant effect opposite to prediction, $t(64) = -2.43$, $p = .02$, $d = -0.59$. This result can be interpreted such that provoked participants did not experience anger but rather dejection, a negative emotion low on the arousal dimension. The illegitimacy of the experimenter's changing the background noise may not have been appraised accordingly.[29]

Table 8. Means and standard deviations for cognitive appraisal of background noise, provocation-elicited core affect, and general affect measurements before and after the provocation manipulation separately for both provocation conditions (Study 3).

	provocation	no provocation
cognitive appraisal	5.00 (1.47)	2.63 (1.52)
core affect – arousal	3.63 (1.45)	4.41 (1.17)
core affect – valence	4.14 (1.67)	2.04 (1.04)
general affect$_1$	3.50 (1.72)	2.82 (1.00)
general affect$_2$	5.13 (1.77)	2.76 (1.10)

Note. Standard deviations are specified in brackets. General affect$_1$ was assessed at the beginning of the experimental session, general affect$_2$ was assessed after the feedback.

A 2×2 mixed-model ANOVA with provocation as between-subjects factor and two general affect measurements, one at the beginning of the experimental session and one after the feedback, as within-subjects factor further indicated an effective provocation manipulation. Both main effects were significant, $F(1, 64) = 23.23$, $p < .001$, $\eta_p^2 = .266$ for the within-subjects factor and $F(1, 64) = 23.52$, $p < .001$, $\eta_p^2 = .269$ for the between-subjects factor (cf. Table 8 for means and standard deviations). The main effects were qualified by a significant two-way interaction, $F(1, 64) = 26.86$, $p < .001$, $\eta_p^2 = .296$. Simple comparisons

[29] One participant, for example, stated after the debriefing she had thought that since the study was said to investigate the impact of background noises, more disturbing noise as compared with classical music would produce more conclusive data.

revealed that participants in the provocation conditions only marginally significantly differed from participants in the no provocation conditions with regard to their general affect ratings at the first measurement point, $F(1, 64) = 3.86$, $p = .054$, $\eta_p^2 = .057$. After the false feedback, the difference was much more pronounced, $F(1, 64) = 42.71$, $p < .001$, $\eta_p^2 = .400$. Initially, an experimenter effect may have accounted for the marginally significant difference between provoked and non-provoked participants, the augmentation of negative affect in the provocation conditions is however not plausibly attributable to such interfering influences but rather to the experimental manipulation.

Manipulation check trigger. The effectiveness of the trigger manipulation was also assessed with general affect measurements. One measurement point was shortly before participants did the minimal group categorization task, the other measurement point was directly after the trigger. These measurements were entered as a within-subjects factor in a 2 × 2 × 2 mixed-model ANOVA with provocation and trigger as between-subjects factors. The within-subjects factor was statistically significant, $F(1, 62) = 6.83$, $p = .011$, $\eta_p^2 = .099$, and so was the provocation main effect, $F(1, 62) = 22.08$, $p < .001$, $\eta_p^2 = .263$ (cf. Table 9 for means and standard deviations). Negative affect was higher before than after the trigger manipulation and provoked participants reported more negative affect than non-provoked participants. No significant main effect was observed for the trigger manipulation, $F < 1$. The two-way interaction of the within-subjects factor and provocation showed a non-significant tendency, $F(1, 62) = 2.78$, $p = .101$, $\eta_p^2 = .043$. The interaction of the within-subjects factor and trigger was not significant, $F < 1$, and the interaction of both experimental factors was marginally significant, $F(1, 62) = 3.56$, $p = .06$, $\eta_p^2 = .054$. Analysis of the simple effects revealed no difference between no provocation-trigger and no provocation-no trigger conditions, $F < 1$, but scores of negative general affect were marginally significantly higher in the provocation-trigger condition than in the provocation-no trigger condition, $F(1, 62) = 3.58$, $p = .06$, $\eta_p^2 = .055$. The three-way interaction was not statistically significant, indicating that the difference between the provocation-trigger and the provocation-no trigger condition already existed before the trigger was actually applied.

Ultimately, it is impossible to ascertain whether participants actually read the triggering remarks. Nonetheless, participants spent on average 164.14 seconds ($SD = 61.54$) from the first appearance of the trigger on the screen until they moved on to the next screen, suggesting that participants indeed looked at the previous entries.

Table 9. Means and standard deviations for general affect measurements before and after the trigger manipulation separately for all four conditions (Study 3).

	provocation		no provocation	
	trigger	no trigger	trigger	no trigger
general affect$_3$	5.13 (1.78)	4.19 (1.72)	2.65 (0.93)	3.12 (1.41)
general affect$_4$	4.56 (1.86)	3.69 (1.35)	2.65 (0.79)	2.88 (1.41)

Note. Standard deviations are specified in brackets. General affect$_3$ was assessed shortly before participants did the minimal group categorization task, general affect$_4$ was assessed directly after the trigger.

Preliminary analyses

Across conditions, participants selected the unpleasant noise significantly more often for the outgroup than for the ingroup, $\chi^2(1, N = 66) = 4.91$, $p = .03$. This result could however have been produced by an outgroup derogating motive as well as by an ingroup favoring motive. A further expression of this general social differentiating tendency was the relatively louder noise exposure set for the outgroup than for the ingroup revealed by a $2 \times 2 \times 2$ mixed-model ANOVA with dB level for ingroup and outgroup as within-subjects factor and provocation and trigger as between-subjects factors. The within-subjects factor only slightly missed conventional levels of statistical significance, $F(1, 62) = 3.86$, $p = .054$, $\eta_p^2 = .059$. The difference between ingroup dB level and outgroup dB level was negative in all conditions, signifying that more intense dB levels were chosen for the outgroup than for the ingroup (cf. Table 10 for means and standard deviations). No other main effect was significant, Fs < 1. The interaction of the between-subjects factors was statistically significant, $F(1, 62) = 5.14$, $p = .03$, $\eta_p^2 = .076$. Simple effects revealed no difference between provoked and non-provoked participants who were subsequently triggered, $F(1, 62) = 1.28$, $p = .26$, $\eta_p^2 = .020$, but significantly higher dB levels chosen by participants in the no provocation-no trigger condition than in the no provocation-trigger condition, $F(1, 62) = 4.92$, $p < .04$, $\eta_p^2 = .065$. No other two-way interaction nor the three-way interaction were statistically significant, Fs < 1. The higher noise level set for the outgroup relative to the choice for the ingroup was thus independent from experimental manipulations.

Table 10. Means and standard deviations for the dependent measures separately for all four conditions (Study 3).

	provocation		no provocation	
	trigger	no trigger	trigger	no trigger
Db level outgroup	6.94 (3.07)	5.75 (2.77)	6.53 (2.58)	7.00 (3.66)
Δ Db level	-1.13 (4.16)	-0.75 (3.79)	-1.76 (4.52)	-0.59 (4.89)
outgroup warmth	5.25 (1.01)	5.13 (0.73)	5.06 (0.87)	5.39 (1.13)
Δ warmth	-0.90 (1.15)	-0.71 (1.11)	-0.37 (0.98)	-0.73 (1.63)
outgroup competence	4.34 (1.70)	3.94 (1.30)	4.65 (1.32)	5.00 (1.46)
Δ competence	0.44 (2.56)	0.75 (2.58)	-0.65 (2.38)	-0.91 (2.77)
trigger-elicited emotions				
anger	2.44 (1.39)	2.69 (1.45)	1.35 (0.55)	1.79 (0.85)
dejection	3.56 (1.93)	3.00 (1.59)	1.71 (1.05)	2.71 (1.71)
positive emotions	3.59 (1.73)	3.91 (1.32)	5.09 (0.78)	5.00 (1.16)
experimenter evaluation	5.71 (1.13)	5.75 (1.10)	5.94 (1.12)	5.59 (1.10)
identification	4.69 (1.30)	3.91 (1.54)	4.56 (1.33)	4.76 (1.78)
discounting	3.25 (1.54)	3.13 (1.01)	2.88 (0.88)	2.71 (1.24)

Note. Standard deviations are specified in brackets.

Planned contrast analyses

Next, planned contrast analyses were run to test the predicted interactive effects of provocation and trigger on the dependent measures. Identification with the minimal group was included as a covariate. The covariate was however not significant for the outgroup level, $F(1, 61) = 1.89$, $p = .17$, $\eta_p^2 = .030$, nor for the difference score, $F < 1$. The predicted 3 -1 -1 -1 contrast failed to occur for both the dB level set for the outgroup and the difference score obtained by subtracting dB level set for the outgroup from the dB level set for the ingroup, Fs < 1 (cf. Table 10 for means and standard deviations). Significant amounts of residual variance remained for neither measure, Fs < 1. Participants who were both initially provoked and

subsequently triggered did not select statistically significantly higher dB levels for the outgroup nor did they display a higher tendency than participants in the other three conditions to maximize differences between the levels chosen for ingroup and outgroup.

In the planned contrast analyses of the attribute ratings, the self-categorization as subtaxator or supprataxator was included as a further covariate. Self-categorization was a significant covariate for all attribute rating measures, Fs(1, 60) > 4.18, ps < .05, η_p^2 > .065, with the exception of the outgroup rating on the warmth dimension, F < 1. Identification only emerged as a significant covariate for the difference score on the warmth dimension, $F(1, 60) = 8.03$, $p < .01$, $\eta_p^2 = .118$, for the other measures Fs(1, 60) < 1.79, ps > .18, η_p^2s < .029. No focal contrast emerged statistically significant, Fs < 1 (cf. Table 10 for means and standard deviations). Marginally significant amounts of residual variance only remained for the competence measures, $F(1, 60) = 3.66$, $p = .06$, $\eta_p^2 = .058$ and $F(1, 60) = 3.28$, $p = .08$, $\eta_p^2 = .052$ for outgroup ratings and the difference score, respectively, for the warmth measures both Fs < 1. 2 × 2 between-subjects ANOVAs were conducted to explore the between-group differences on both competence measures. Identification and self-categorization were again included as covariates.[30] In both analyses, the main effects were non-significant, Fs < 1. For the outgroup competence rating a marginally significant interaction effect was obtained, $F(1, 60) = 3.40$, $p = .07$, $\eta_p^2 = .054$, for the difference score a non-significant tendency was observed for the interaction effect, $F(1, 60) = 2.56$, $p = .11$, $\eta_p^2 = .041$. Simple comparisons for the outgroup competence rating revealed no difference depending on trigger level for provoked participants, $F(1, 60) = 1.05$, $p = .31$, $\eta_p^2 = .017$, but a non-significant tendency for non-provoked participants, $F(1, 60) = 2.60$, $p = .11$, $\eta_p^2 = .042$. Participants tended to consider the outgroup less competent in the no provocation-trigger condition than in the no provocation-no trigger condition.

The trigger-elicited emotions were also analyzed with planned contrast analyses, they were predicted to result interactively from both experimental manipulations in the provocation-trigger condition. Identification was entered as a covariate. However, identification only emerged as a marginally significant covariate for the positive emotions measure, $F(1, 61) = 2.96$, $p = .09$, $\eta_p^2 = .046$, for anger and dejection identification was no significant covariate, Fs(1, 61) < 1.67, ps > .20, η_p^2s < .027. While the focal contrast for

[30] Results for the covariates are not reported again, they are identical with the ones from the previous analyses.

trigger-elicited anger showed only a non-significant tendency, $F(1, 61) = 2.56$, $p = .11$, $\eta_p^2 = .040$, it was statistically significant for trigger-elicited dejection and the positive emotions index, $F(1, 61) = 5.82$, $p = .02$, $\eta_p^2 = .087$ and $F(1, 61) = 9.47$, $p < .01$, $\eta_p^2 = .134$, respectively (cf. Table 10 for means and standard deviations). However, significant amounts of unexplained variance remained for all three indices, Fs$(1, 61) > 5.13$, ps $< .03$, η_p^2s $> .077$.

To explore the observed residual variance for the trigger-elicited emotion scores omnibus F tests were conducted. Identification was again included as a covariate. The 2×2 between-subjects ANOVA with provocation and trigger revealed a significant provocation main effect for trigger-elicited anger, $F(1, 61) = 12.03$, $p < .001$, $\eta_p^2 = .165$. Provoked participants reported higher levels of trigger-elicited anger than non-provoked participants. No other effect was statistically significant, $F(1, 61) = 1.37$, $p = .25$, $\eta_p^2 = .022$ for the trigger main effect and $F < 1$ for the interaction. A provocation main effect was also observed for dejection, $F(1, 61) = 6.14$, $p = .02$, $\eta_p^2 = .091$; it was of notably lesser magnitude than the provocation main effect for trigger-elicited anger, though. Provoked participants experienced stronger dejection than non-provoked participants. The trigger main effect was non-significant, $F < 1$, the significant two-way interaction qualified the provocation main effect, $F(1, 61) = 4.49$, $p = .04$, $\eta_p^2 = .069$. Simple comparisons revealed that the intensity of the dejection experience did not differ depending on trigger manipulation for participants who had been previously provoked, $F(1, 61) = 1.41$, $p = .24$, $\eta_p^2 = .023$. Among unprovoked participants, triggered participants experienced marginally significantly less trigger-elicited dejection than non-trigger participants, $F(1, 61) = 3.38$, $p = .07$, $\eta_p^2 = .052$. The provocation main effect was also highly significant for the positive emotions index, $F(1, 61) = 15.27$, $p < .001$, $\eta_p^2 = .200$. Participants in the provocation conditions experienced significantly less positive emotions than participants in the no provocation conditions. The trigger main effect and the interaction were not significant, Fs < 1. In sum, the categorical emotions primarily reflected the provocation manipulation.

The evaluative ratings of the experimenter were also analyzed with only identification as a covariate. No displacement of aggression on the outgroup had occurred and the source of the original provocation, the experimenter, was still available. Hence, it might have been the case, that participants' evaluation of the experimenter further deteriorated in the provocation-trigger condition as compared with the provocation-no trigger condition. The intermediately encountered triggering provocation might have enhanced the aggressive response to the

provocation by the experimenter. Therefore, the focal contrast was again specified as 3 -1 -1 -1. Yet, neither the focal contrast nor the test for residual variance or the covariate were statistically significant, Fs < 1 (cf. Table 10 for means and standard deviations).

A planned contrast analysis with 3 -1 -1 -1 as the focal contrast was also run for identification with the minimal group and the related discounting measure. The predicted focal contrasts were not statistically significant, Fs(1, 62) < 1.04, ps > .31, η_p^2s < .017. Remaining residual variance was marginally statistically significant for identification, F(1, 62) = 2.91, p = .09, η_p^2 = .045, and non-significant for the discounting measure, F < 1 (cf. Table 10 for means and standard deviations). A 2 × 2 between-subjects ANOVA for identification only revealed non-significant effects, Fs(1, 62) < 1.78, ps > .18, η_p^2s < .028. Across conditions, identification with the minimal group was significantly above the mid-point of the scale, t(65) = 2.61, p = .011, d = 0.32.

Planned contrast analyses with post-hoc affective factors

Since the experimental manipulations did not affect the affective measures as predicted post-hoc affective factors were computed from the core affect measures and from trigger-elicited affect measures. For the core affect measures raw arousal and valence scores were multiplied, centered, and dichotomized via median splits to obtain a single core affect index representing anger. An analogous index was computed for dejection after arousal had been reverse coded. The core affect index representing the positive emotions was obtained by simply median-splitting the centered valence score.

For each of the three indices t tests were run on the arousal and the valence dimension to determine whether participants who received high scores reliably differed from participants who received low scores. Participants who received a high core affect anger score reported no statistically significantly higher levels of arousal than participants who received a low core affect anger score, M = 3.89, SD = 1.18 and M = 4.17, SD = 1.52, respectively, t < 1. The composite core affect index for provocation-elicited anger therefore needs to be interpreted with particular caution, it cannot unequivocally be interpreted as representing anger. On the valence dimension, however, participants who received a high core affect anger score obtained higher (i.e., more negative) ratings than participants who received a low core affect anger score, M = 4.17, SD = 1.37 and M = 1.95, SD = 1.29, respectively, t(64) = 6.75, p < .001, d = 1.67. In contrast, for the core affect dejection measure differences between participants who received high versus low scores were reliable on both

dimensions, $M = 4.92$, $SD = 0.96$ and $M = 3.02$, $SD = 0.98$, respectively, on the arousal dimension, $t(64) = 7.99$, $p < .001$, $d = 1.96$, and $M = 4.44$, $SD = 1.29$ and $M = 1.68$, $SD = 0.71$ on the valence dimension, $t(64) = 10.80$, $p < .001$, $d = 2.66$. Although no difference on the arousal dimension was expected for the core affect measure representing positive emotions, participants who received high versus low scores were reliably different on both dimensions. Participants with a high positive emotions score reported more arousal and less negative valence than participants with a low score, $M = 4.75$, $SD = 1.14$ and $M = 3.27$, $SD = 1.16$, $t(64) = 5.26$, $p < .000$, $d = 1.29$ on the arousal dimension and $M = 1.63$, $SD = 0.55$ and $M = 4.58$, $SD = 1.15$, $t(44.06) = -13.12$, $p < .001$, $d = -3.68$ on the valence dimension. The significant difference on the arousal dimension is not particularly problematic, no hypotheses pertained to the level of arousal in positive emotions.

The respective second quasi-experimental affective factors were obtained by dichotomizing scores on the corresponding trigger-elicited emotion measures via median split. Nested median-splits were computed because the trigger-elicited emotions were significantly correlated with the corresponding core affect indices, $r(66) = .40$, $p < .001$, $r(66) = .60$, $p < .001$, and $r(66) = .63$, $p < .001$, for anger, dejection, and positive emotions, respectively. The corresponding dichotomous affective measures were then crossed to produce variables with four levels: (1) high core affect score[31]-high trigger-elicited emotion score, (2) high core affect score-low trigger-elicited emotion score, (3) low core affect score-high trigger-elicited emotion score, and (4) low core affect score-low trigger-elicited emotion score. With these post-hoc variables new sets of planned contrast analyses were run. Identification was no longer included as a covariate since its impact is expected to be inherent in the affective measures.

On both dB level measures, dB level for the outgroup and the difference between dB level selected for ingroup and outgroup, no systematic variance emerged in the planned contrast analyses with the post-hoc anger factor, Fs < 1 for the focal contrasts as well as for the tests for significant residual variance. Self-categorization was entered as a covariate in all attribute rating analyses. It was no significant covariate for outgroup warmth, $F < 1$. For all other attribute rating measures the covariate was significant, Fs(1, 61) > 4.57, ps < .04, η_p^2s >

[31] High versus low core affect score denotes the composite indices computed to represent anger and dejection, respectively. In the case of positive emotions, it refers only to the valence dimension. The positive emotions variables were coded such that high scores represented low levels of positive emotions.

.069. For outgroup warmth a significant focal contrast was revealed, $F(1, 61) = 6.00$, $p = .02$, $\eta_p^2 = .089$, but significant amounts of unexplained variance remained, $F(1, 61) = 4.57$, $p = .04$, $\eta_p^2 = .070$. No systematic between group differences were revealed for the other three rating measures, Fs$(1, 61) < 1.73$, ps $> .19$, η_p^2s $< .028$. The residual variance for outgroup warmth ratings was explored with a 2×2 between-subjects ANOVA including self-categorization as a covariate. The main effect of core affect anger was not significant, $F < 1$. A significant main effect was revealed for trigger-elicited anger, $F(1, 61) = 9.20$, $p = .004$, $\eta_p^2 = .131$, participants who experienced high trigger-elicited anger rated the outgroup less warm than participants who experienced low trigger-elicited anger. The interaction was not statistically significant, $F(1, 61) = 1.77$, $p = .19$, $\eta_p^2 = .028$.

Next, it was tested whether the post-hoc anger factor produced the 3 -1 -1 -1 contrast effect for the evaluation of the experimenter. This was however not the case. The focal contrast was not significant, $F(1, 62) = 1.55$, $p = .22$, $\eta_p^2 = .024$, instead significant amounts of unexplained residual variance remained, $F(1, 62) = 10.35$, $p = .002$, $\eta_p^2 = .143$. Therefore, an omnibus F test was conducted. The pattern of results from the 2×2 between-subjects ANOVA resembled the one for the outgroup warmth rating. The core affect main effect was not significant, $F < 1$. The main effect of trigger-elicited anger was statistically significant, $F(1, 62) = 8.88$, $p = .004$, $\eta_p^2 = .125$, participants who experienced high anger after the trigger manipulation evaluated the experimenter less favorably than participants who experienced low trigger-elicited anger. The interaction effect was not significant, $F(1, 62) = 2.35$, $p = .13$, $\eta_p^2 = .036$. Note, that trigger-elicited anger had been nested into core affect anger, consequently the observed trigger-elicited anger main effect cannot simply be interpreted to reflect persisting provocation-elicited anger. It rather seems to be the case that a triggering provocation experienced after the initial provocation augmented the aggressive response to the source of the original provocation, trigger-elicited anger was displaced on the experimenter.

The absence of the expected interactively increased inclination towards aggressive behavior against either the outgroup or the experimenter finally becomes plausible through analysis of the identification and particularly the discounting measure. For identification the focal contrast missed statistical significance, $F(1, 62) = 2.00$, $p = .16$, $\eta_p^2 = .031$, while no significant residual variance remained, $F < 1$. Participants who received high anger scores for both measures were descriptively less identified with the minimal ingroup than participants

who received low anger scores for one or both measurements. A significant focal contrast for the discounting measure corroborated the notion that participants' affective reactions to the experimental manipulations led them to reject the minimal social category they had been assigned to, $F(1, 62) = 6.86$, $p = .011$, $\eta_p^2 = .100$. The focal contrast parsimoniously accounted for the observed between-group differences, no significant amount of unexplained variance remained, $F < 1$.

The same set of analyses was next computed with the post-hoc dejection factor. However, no focal contrast for any outgroup related-measure (i.e., the outgroup as well as the difference scores for the dB level and attribute ratings) was significant, Fs < 1. For the dB level measures the tests for significant residual variance were also non-significant, Fs(1, 58) < 1.69, ps > .19, $\eta_p^2 < .029$. The analyses for the attribute ratings again included the covariate self-categorization. As in the previous analyses, self-categorization was no significant covariate for outgroup warmth, $F < 1$, but was statistically significant for the other three attribute rating measures, Fs(1, 57) > 4.22, ps < .05, η_p^2s > .069. With regard to the warmth ratings, significant residual variance remained for the outgroup rating, $F(1, 57) = 4.37$, $p = .04$, $\eta_p^2 = .071$, and marginally significant residual variance remained for the difference score, $F(1, 57) = 2.92$, $p = .09$, $\eta_p^2 = .049$. The residual variance for both warmth rating measures was explored by omnibus F tests including the covariate self-categorization. The main effect of core affect dejection was not significant for outgroup warmth, $F < 1$. A marginally significant main effect of trigger-elicited dejection was revealed, $F(1, 57) = 3.73$, $p = .06$, $\eta_p^2 = .061$. Participants with a high score for trigger-elicited dejection evaluated the outgroup as less warm than participants with a low trigger-elicited dejection score. The interaction effect was not significant, $F < 1$. For the warmth difference score no significant effect was observed, Fs(1, 57) < 1.36, ps > .24, η_p^2s < .024.

The evaluation of the experimenter did not statistically significantly vary depending on the level of dejection participants experienced, $F < 1$ for the focal contrast and $F(1, 58) = 2.65$, $p = .11$, $\eta_p^2 = .044$ for the test of residual variance. The focal contrast for identification was not significant, $F < 1$, but significant amounts of unexplained variance remained, $F(1, 58) = 4.51$, $p = .04$, $\eta_p^2 = .072$. However, neither main effect nor the interaction effect emerged statistically significant in a 2×2 between-subjects ANOVA, $F < 1$, $F(1, 58) = 2.47$, $p = .12$, $\eta_p^2 = .041$, and $F(1, 58) = 1.74$, $p = .19$, $\eta_p^2 = .029$ for core affect dejection, trigger-elicited dejection, and the interaction term, respectively. The only significant focal contrast

with the dejection factor was obtained for the discounting measure, $F(1, 58) = 6.97$, $p = .011$, $\eta_p^2 = .107$, significant amounts of unexplained variance remained, though, $F(1, 58) = 4.22$, $p = .04$, $\eta_p^2 = .068$. A 2×2 between-subjects ANOVA revealed a marginally significant main effect of core affect dejection and a statistically significant main effect of trigger-elicited dejection, $F(1, 58) = 3.16$, $p = .08$, $\eta_p^2 = .052$ and $F(1, 58) = 7.99$, $p = .006$, $\eta_p^2 = .121$, respectively. For both dejection measures a high score was associated with more discounting. The interaction effect was not significant, $F < 1$.

A third time, the planned contrast analyses were computed with post-hoc positive emotions. The focal contrasts for both dB measures were non-significant, Fs < 1. Significant amounts of residual variance remained only for the outgroup dB level, $F(1, 62) = 18.63$, $p < .001$, $\eta_p^2 = .032$, for the difference score $F < 1$. An omnibus F test was conducted to explore the between-group differences for the dB level set for the outgroup, yet no significant effect was revealed, Fs < 1 for both main effects and $F(1, 62) = 1.60$, $p = .21$, $\eta_p^2 = .025$ for the interaction effect.

The only significant focal contrast was observed for the outgroup warmth rating, $F(1, 61) = 4.38$, $p = .04$, $\eta_p^2 = .067$, for the other attribute rating scores Fs < 1. Similar to the outgroup dB level measure, significant residual between-group differences remained for both outgroup ratings, $F(1, 61) = 4.16$, $p = .046$, $\eta_p^2 = .064$ and $F(1, 61) = 4.53$, $p = .04$, $\eta_p^2 = .069$ for warmth and competence, respectively, but not for the corresponding difference measures, Fs$(1, 61) < 1.54$, ps $> .21$, η_p^2s $< .024$. As in the other planned contrast analyses, self-categorization was no significant covariate in the analysis of outgroup warmth, $F < 1$, but a (marginally) significant covariate in the other 3 analyses, Fs$(1, 61) > 3.88$, ps $< .054$, η_p^2s $> .059$. The residual variance for both outgroup ratings was explored by 2×2 between-subjects ANOVAs with self-categorization as a covariate. The core affect main effect and the interaction effect were non-significant in both analyses, Fs$(1, 61) < 1.33$, ps $> .25$, η_p^2s $< .022$. For outgroup warmth, the main effect of trigger-elicited positive emotions was statistically significant, $F(1, 61) = 8.00$, $p = .006$, $\eta_p^2 = .116$, for outgroup competence, the main effect of trigger-elicited positive emotions was marginally significant, $F(1, 61) = 3.55$, $p = .06$, $\eta_p^2 = .055$. The outgroup was evaluated less warm and less competent by participants with low trigger-elicited positive emotion scores as compared with participants with high trigger-elicited positive emotion scores. Absence of positive affect after the trigger

manipulation (i.e., after participants had read the alleged remarks from other participants) thus produced the devaluation of the outgroup.

No systematic variance was observed with regard to the experimenter evaluation, Fs < 1. For identification both focal contrast and the test for residual variance showed non-significant tendencies, $F(1, 62) = 2.47$, $p = .12$, $\eta_p^2 = .038$ and $F(1, 62) = 2.76$, $p = .102$, $\eta_p^2 = .043$, respectively. A marginally significant focal contrast was revealed for the discounting measure, $F(1, 62) = 3.72$, $p = .06$, $\eta_p^2 = .057$. Participants who experienced only weak positive emotions following both manipulations, discounted the minimal group more than all other participants. The marginally significant focal contrast accounted for the observed between-group differences, the test for residual variance was not significant, $F < 1$.

The pattern of results was largely comparable across the three different affective factors. Particularly participants who experienced high levels of anger after both manipulations, but also participants who experienced absence of positive emotions after both manipulations most strongly rejected the new ingroup. No such interactive effect was observed for dejection. Still, strong experiences of dejection after either manipulation lead to discounting, but independent of the respective other dejection measure.

Exploratory analyses

Simple linear regression analyses investigated whether and how the attribute ratings were associated with the behavioral outgroup derogation measure. Neither attribute rating of the outgroup significantly predicted outgroup derogation, $\beta = .13$ and $\beta = .09$ for warmth and competence, respectively, ts(64) < 1.06, R^2s < .018, Fs < 1.12.

7.1.3 Summary

Higher levels of noise intensity and less favorable attribute ratings for the outgroup were expected in the provocation-trigger condition. Although differential treatment of ingroup and outgroup occurred for selection and intensity of noise, it was independent of experimental conditions. Manipulation checks indicate that participants were not angered by the initial provocation but that they rather felt dejected. Consequently, augmentation of trigger-elicited anger and outgroup derogation in the provocation-trigger condition was no longer expected.

The initial provocation failed to induce anger. Apparently, participants did not perceive the experimenter's behavior as illegitimate and unfair, the evaluation of the

experimenter did not differ across conditions. The participants themselves generated a rationale for the experimenter's behavior, although it had been disadvantageous for them[32]. The experimenter's social role might have caused the implicit assumption that her behavior towards the participant was reasonable. Therefore, in the next study the experimenter's provoking behavior was clearly unfair and not attributable to a rational cause. Interestingly, however, analyses with post-hoc affective factors revealed that trigger-elicited anger led to a displacement of aggression on the experimenter.

The background-noise in the provocation conditions, the Radio-Medley, was presumed to be an aversive stimulus. Whereas some participants indeed strongly disliked it, other participants actually enjoyed it. Thus, although the Radio-Medley might have been disturbing, it was not unequivocally experienced as aversive.

Experimental minimal groups afford a comparatively easy way to evade negative affect associated with the group: discounting the personal relevance of the group and reducing identification with the group. A similar process may account for the observed higher levels of group-based guilt in lowly identified participants as compared with highly identified participants (Doosje, Branscombe, Spears, & Manstead, 1998; Gordijn et al., 2006). Discounting the supratAxator and subtaxator category, respectively, was stronger when participants reported high levels of anger after both experimental manipulations than for the other three possible combinations of experienced anger. Absence of positive emotions produced a similar 3 -1 -1 -1 contrast effect, but of lesser magnitude. For dejection discounting was higher for high than for low levels of either dejection measure. All in all, participants did not vent their unpleasant affective state by aggressing against the minimal outgroup, but they diminished the psychological significance by means of discounting the assigned category.

7.2 Study 4

As a consequence of the affective reaction to the provocation manipulation in Study 3 that was rather dejection than anger, a modified initial provocation was employed. Changes followed theorizing of Miller et al. (2003), who depicted centrality of the goal as a potentially important factor. Therefore, instead of giving a bad performance feedback to a comparatively insignificant task, participants were promised financial gain which was then illegitimately

[32] Participants assumed, for example, that classical music had already been played a couple of times that day.

withheld. The auditory stimulation in the provocation conditions was changed to industrial noise so that it would unequivocally be experienced as aversive. Further minor changes to the procedure are specified in the method section.

Moreover, an additional experimental factor "delay" was introduced to examine whether the incessant procedure of the experimental session in Study 3 inhibited effects of triggered displacement. In interpersonal triggered displaced aggression research, participants regularly have to wait for some minutes, for example, while the experimenter allegedly exchanges material of the participants (Pedersen et al., 2000; Pedersen et al., in progress; Vasquez et al., 2005).

The delay factor was introduced to foster the understanding of the process underlying outgroup derogation. It was assumed that a long as compared with a short delay would increase rumination among provoked participants but not among unprovoked participants. Consequently, in accordance with Bushman and collaborators (2005), trigger-elicited anger and outgroup derogation in the provocation-trigger condition were expected to be higher when the delay was long than when the delay was short. Note, however, that the current delay factor was not suitable to distinguish arousal-based from rumination-based triggered displaced aggression. Even the time span in the long delay conditions was too short to exclude persisting arousal as a potential explanation. The experimental procedure was disruptive in all conditions, but only in the delay conditions were participants left to themselves for a substantial period of time.

7.2.1 Method

Participants and Design. Fifty-eight female and 49 male students of the Friedrich-Schiller-University Jena volunteered to take part in the study in exchange for €5,- to €10,-, one participant was actually a high-school student. The participants were aged 17 to 36 (M = 22.66, SD = 3.18)[33]. Participants were randomly assigned to conditions of the 2 (provocation, no provocation) × 2 (delay, no delay) × 2 (trigger, no trigger) between-subjects design, yet the full design was realized before starting the next replication.

Procedure. Participants were tested individually. The general procedure was identical with Study 3. In the provocation conditions, a female experimenter welcomed participants and introduced them to the experimental session. Other than in Study 3, a male experimenter

[33] Due to a recording error, information about participants' age is only available for n = 86.

entered the laboratory after a couple of minutes and told the female to leave, he would proceed with the session. The male experimenter verbally instructed participants to write the solutions to the anagram task on an answer sheet in addition to entering them via the computer keyboard. A particular performance criterion was set and whoever fulfilled it qualified for an additional incentive of €5,- that was allegedly made possible by the availability of additional subsidies. Together with the anagram answer sheet participants had received a form that would function as a voucher for the additional money. A big box sat on the experimenter's desk into which the vouchers were evidently to be dropped. A large and bright blue sign on the box read "EUR 5,- recipients (subsidies)". All participants ostensibly reached the performance criterion. The positive feedback again mentioned the €5,-, the gain of the money was thus highly salient. Additionally, the request appeared on the computer screen to fill in the voucher form if participants did reach the criterion and to call the experimenter afterwards. The computer screen still displayed that participants ostensibly had attained the required performance level, yet, the experimenter produced an invalid reason to deny receipt of the money. He accused participants of not having numbered the anagram solutions on the sheet of paper which he had never instructed them to do. The experimenter took the answer sheet as well as the voucher and, instead of setting the voucher in the box, tore both sheets, turned his back, and dropped them in the trashcan. When participants protested that they had not been properly instructed or that they could still add the numbers the experimenter said coldly "Please go on with the next task!". Denial of the money participants believed they had earned is a frustration (Dollard et al., 1939). The illegitimacy of the experimenter's action should have made the incident particularly anger-arousing (Frijda et al., 1989; Roseman, Spindel, & Jose, 1990). An aspect assumed to add to the perceived illegitimacy is that the unfair male experimenter should not have been there in the first place, consequently potentially giving rise to counterfactual thinking (see e.g., Roese, 1997). A strong anger response to the loss of the additional €5,- was further assumed because participants had earned them under highly aversive conditions: They had been put under comparatively high pressure by short intervals for single anagrams while they were exposed to industrial noise and whenever they failed to enter the correct solution they were reprimanded.

The female experimenter was only present in the provocation conditions. As in Study 3, participants in the no provocation conditions were exposed to classical music and they were put under less time pressure. Participants also had to write the anagram solutions on an

answer sheet in addition to entering them into the computer. Yet, no performance criterion was set and participants received a positive performance feedback. Participants in the no provocation conditions also learned about the chance to receive additional money prior to the anagram task. However, they were told that all participants would take part in a draw.

Four cognitive appraisal items measured how participants evaluated the auditory stimulation (e.g., "The auditory stimulation interfered with my concentration.", see Appendix for the full scale; Cronbach's $\alpha = .92$). Participants rated the items on 7-point scales ranging from 1 (*not at all*) to 7 (*absolutely*). Changes to the experimental manipulation as compared with Study 3 yielded this scale no longer a true manipulation check, but it was retained to strengthen the cover story. Besides, the industrial noise was assumed to be an aversive stimulus by itself, thus potentially inducing negative affect. After the cognitive appraisal items participants answered the pictorial core affect measures (see Appendix; cf. chapter 5.5). The core affect measures were significantly correlated, $r(98) = .30$, $p < .01$.

After the manipulation check of the provocation manipulation, the computer appeared to have a technical problem. The screen started to flicker, only rapidly moving white lines were visible.[34] The experimenter waited until the participant informed him, then stated that he would have to have a look at the computer and try to fix it. He told participants to wait next door, he would call them back in once they could proceed. In the delay conditions, participants spent 4 minutes alone in an adjacent room. No additional task (e.g., internally focused tasks) explicitly induced rumination. Yet, not much time had passed since the interaction with the experimenter in the provocation conditions and directly prior to the delay participants had answered the provocation manipulation check items asking for the perception of the first task and the affective reaction to it. Therefore, it seemed reasonable to assume that provoked participants' thoughts would focus on the provocation manipulation. In the no delay conditions, the experimenter started the second part of the computer program as soon as participants were out of sight and immediately after that called them in again.

Next, participants learned about the subtaxator-suprataxator personality trait. They self-categorized, took the test, and their self-categorization was confirmed. The trigger manipulation was slightly changed to reduce the probability that participants would fail to read the triggering remarks. Participants' case number was 6, thus, only five previous entries

[34] Even students of computer science were deluded into believing a technical problem had occurred.

existed. The second to last and the last entry were identical with those in Study 3. After the trigger manipulation, participants assigned both groups to the background noises following a forced-choice format. The loudness scale was reduced to a 10-point scale and the dB levels associated with the scale points now covered a smaller range. Smaller amounts of error variance were expected to result. Participants set the loudness for future participants between 55 dB and 100 dB. The dB level for the outgroup was always set first. Order of ingroup and outgroup related items has been shown to impact participants judgments, outgroup evaluation on positive attributes was worst when assessed prior to the ingroup evaluation (Otten, 2001).

Next, participants reported their current affective state on 7-point categorical emotion scales ranging from 1 (*not at all*) to 7 (*very much*). Anger was measured by the items "angry" and "outraged" (Cronbach's $\alpha = .78$), dejection by "dejected" and "sorrowful" (Cronbach's $\alpha = .87$), and positive emotions were assessed with the items "happy" and "contented" (Cronbach's $\alpha = .77$). The three trigger-elicited emotion indices were highly significantly correlated, $r(98) = .44$, $p < .001$ for both negative emotions and $r(98) = -.51$, $p < .001$ and $r(98) = -.68$, $p < .001$ for the positive emotions index with anger and dejection, respectively.

The attribute ratings were – like the dB levels – assessed firstly for the outgroup and secondly for the ingroup (cf. Otten, 2001). The outgroup warmth index was again formed by averaging scores for "tolerant", "likable", and "pleasant", but unlike in Study 3, the reliability of this index was weak, Cronbach's $\alpha = .47$. Competence was assessed with the single item "determined". Difference indices were computed by subtracting outgroup scores from the corresponding ingroup scores, then the three warmth difference scores were averaged to obtain a composite index (Cronbach's $\alpha = .59$). Ratings were made on 7-point bipolar scales. The mid-point of the scale was zero, representing equal applicability of the desired and undesired attribute. Both poles were labeled 3, no signs indicated the valence of the respective attributes. Assignment of desirable and undesirable attributes to the left- versus right-hand side of the scale was balanced.

The forced-choice format assessing whether participants correctly identified their own group membership was displayed before participants answered the identification scale to preclude the possibility, that participants were unaware of their own group membership while working on the dependent measures and only deduced to which category they belonged from the identification scale. As in the previous study, participants answered the identification scale (Cronbach's $\alpha = .83$), the experimenter evaluation scale (Cronbach's $\alpha = .90$), and the

discounting scale at the end of the experimental session. Reliability of the discounting scale was rather unsatisfactorily, Cronbach's $\alpha = .33$. For reasons of parsimony results are reported for the first item only. Because participants in the provocation condition interacted with two experimenters, participants indicated the sex of the experimenter before they worked on the experimenter evaluation scale. Ratings for the identification, experimenter evaluation, and the discounting scale were made on 7-point scales. For the first two scales, participants indicated on scales ranging from 1 (*do not agree at all*) to 7 (*fully agree*) how much they agreed with the respective statement. For the discounting scale participants indicated how well the statement applied to them from 1 (*does not apply at all*) to 7 (*fully applies*).

Furthermore, habitual rumination was assessed so that individual differences could be controlled for. Two items measuring preoccupation with negative experiences were adapted from the anger rumination scale (Sukhodolsky, Golub, & Cromwell, 2001), direct references to anger and provocation were replaced with less explicit phrases ("After an argument is over, I keep thinking about it for a long time.", "I often ponder for a long time about unpleasant experiences I had because of other people."; Cronbach's $\alpha = .77$). Besides habitual rumination, rumination about the initial provocation was indirectly tapped by a single item ("During this sub-/suprataxator study, other things were coming to my mind."). On a 7-point scale from 1 (*does not apply at all*) to 7 (*fully applies*), participants indicated how much each statement applied to them personally.

Participants' general affect was again assessed repeatedly during the experimental session. Each time, an orange flash indicated the disruption. Participants rated their current affective state on a 9-point scale with poles labeled *positive* and *negative*. At the end of the experimental session, participants were thanked and thoroughly debriefed. Following the procedure depicted in the no provocation conditions, participants drew lots for receipt of up to €5,- in addition to the €5,- everyone received as reimbursement.

7.2.2 Results and Discussion

Checking for multivariate outliers, variables included in the analysis were both dB levels, four scores for attribute ratings (two for each group), trigger-elicited anger, evaluation of the experimenter, and identification. Two multivariate outliers were identified using Mahalanobis distance with a criterion $\alpha = .001$, critical $\chi^2(9, N = 100) = 27.877$. Ratings of both ingroup and outgroup on the warmth dimension as well as identification distinguished one outlier from the other cases. The other multivariate outlier was distinguished by trigger-

elicited anger, rating of the outgroup's determination, and three ingroup related measures (dB level, warmth rating, and determination rating) from the other cases. Both were excluded from further analyses. Additionally, 6 participants whose mother-tongue was not German and one participant who failed to identify her group membership correctly were excluded from analyses. Self-categorization was evenly distributed, 52 participants categorized themselves as supratAxators, 55 as subtaxators.

Manipulation checks

Manipulation check provocation. Participants in the provocation conditions evaluated the auditory stimulation more negatively than participants in the no provocation conditions, $t(82.25) = 9.91$, $p < .001$, $d = 2.03$ (cf. Table 11 for means and standard deviations). Results for the core affect measures are largely consistent with the affective reactions expected. The pictorial valence measure revealed that participants in the provocation conditions experienced more negative valence than participants in the no provocation conditions, $t(92.18) = 3.18$, $p < .01$, $d = 0.64$. Furthermore, provoked participants reported significantly higher levels of arousal than unprovoked participants, $t(96) = 2.22$, $p = .03$, $d = 0.45$.

Table 11. Means and standard deviations for cognitive appraisal of background noise, provocation-elicited core affect, and general affect measurements before and after the provocation manipulation separately for both provocation conditions (Study 4).

	provocation	no provocation
cognitive appraisal	5.42 (1.08)	2.75 (1.53)
core affect – arousal (pictorial)	3.96 (1.51)	3.30 (1.44)
core affect – valence (pictorial)	3.39 (1.52)	2.53 (1.14)
general affect$_1$	2.84 (0.95)	3.45 (1.43)
general affect$_2$	4.14 (1.39)	3.87 (1.51)
general affect$_3$	4.27 (1.76)	3.34 (1.32)

Note. Standard deviations are specified in brackets. General affect$_1$ was assessed during the introduction of the anagram task, general affect$_2$ was assessed halfway through the anagram task, and general affect$_3$ was assessed shortly after the interaction with the experimenter.

An additional manipulation check for provocation is a 2 × 2 mixed-model ANOVA with provocation as between-subjects factor and two general affect measures, one during the introduction of the anagram task, one shortly after the interaction with the experimenter, as within-subjects factor. Across conditions, participants reported higher levels of negative affect after the provocation than at the beginning of the experimental session, $F(1, 96) = 20.51$, $p < .001$, $\eta_p^2 = .176$ (cf. Table 11 for means and standard deviations). The main effect of provocation was not significant, $F < 1$. The within-subjects factor main effect was qualified by a significant two-way interaction, $F(1, 96) = 27.63$, $p < .001$, $\eta_p^2 = .223$. Simple comparisons actually revealed, that participants in the provocation conditions started out with statistically significantly *better* general affect than participants in the no provocation conditions, $F(1, 96) = 6.18$, $p = .015$, $\eta_p^2 = .061$. After they had been exposed to the provocation manipulation, however, participants in the provocation conditions reported significantly *worse* general affect than participants in the no provocation conditions, $F(1, 96) = 8.73$, $p < .01$, $\eta_p^2 = .083$.

A second 2 × 2 mixed-model ANOVA was computed to explore which aspect of the provocation manipulation particularly impacted on participants' affective state. Provocation was entered as the between-subjects factor and two general affect scores as the within-subjects factor. One general affect score was assessed halfway through the anagram task, the other shortly after the interaction with the experimenter (the second affect score is thus identical with the previous analysis). Both main effects were statistically significant, $F(1, 96) = 4.96$, $p = .03$, $\eta_p^2 = .049$ and $F(1, 96) = 4.23$, $p = .04$, $\eta_p^2 = .042$, for the within-subjects factor and provocation, respectively (cf. Table 11 for means and standard deviations). Halfway through the anagram task general affect was more negative than after the interaction with the experimenter and provoked participants reported more negative general affect than non-provoked participants. The main effects were however qualified by a significant two-way interaction, $F(1, 96) = 14.26$, $p < .001$, $\eta_p^2 = .129$. Interestingly, the simple effect of provocation was non-significant at the measurement point in the middle of the anagram task, $F < 1$, but after the interaction with the experimenter, provoked participants reported significantly more negative affect than non-provoked participants, $F(1, 96) = 8.73$, $p < .01$, $\eta_p^2 = .083$ (cf. Table 11 for means and standard deviations). The pattern of means however suggests that these simple effects are primarily due to the fact, that general affect improved in the no provocation conditions rather than deteriorated in the provocation conditions. It hence indicates that the illegitimate act of the experimenter, like in Study 3, largely failed to elicit

an anger response in provoked participants. The successful manipulation checks reflect the aversive and stressful conditions established in the provocation as compared with the no provocation conditions.

Manipulation check rumination. A 2 × 2 ANOVA with provocation and delay as between-subjects factors revealed no statistically significant effect of the experimental manipulations on how strongly participants' mind was occupied during the subtaxator/ supratAxator part of the experimental session, $F(1, 94) = 1.33$, $p = .25$, $\eta_p^2 = .014$ for provocation main effect, both other Fs < 1 (cf. Table 12 for means and standard deviations). Provocation and delay did not interact as expected to produce higher levels of rumination.

Table 12. Means and standard deviations for current rumination and general affect measurements before and after the delay manipulation separately for provocation and delay conditions (Study 4).

	provocation		no provocation	
	delay	no delay	delay	no delay
current rumination	3.48 (1.58)	3.50 (1.98)	3.08 (1.64)	3.09 (1.68)
general affect$_3$	4.52 (1.94)	4.04 (1.56)	3.75 (1.39)	2.91 (1.12)
general affect$_4$	4.32 (1.68)	3.65 (1.35)	3.29 (1.37)	2.91 (1.16)

Note. Standard deviations are specified in brackets. General affect$_3$ was assessed shortly after the interaction with the experimenter, general affect$_4$ was assessed at the beginning of the second part of the experimental session.

A 2 × 2 × 2 mixed-model ANOVA assessed whether the delay manipulation increased negative affect among provoked participants. Thus, the general affect measurement shortly after the interaction with the experimenter and the measurement at the beginning of the second part of the experimental session were entered as a within-subjects factor. Provocation and delay were entered as between-subjects factors. All main effects were statistically significant. Negative general affect was more pronounced before than after the delay, $F(1, 94) = 6.24$, $p = .014$, $\eta_p^2 = .062$ (cf. Table 12 for means and standard deviations). Provoked participants reported more negative affect than non-provoked participants, $F(1, 94) = 10.73$, $p < .01$, $\eta_p^2 = .102$, and participants reported more negative affect in the delay condition than in the no delay condition, $F(1, 94) = 4.46$, $p = .04$, $\eta_p^2 = .045$. No two-way interaction was

significant, Fs < 1. Furthermore, the three-way interaction was non-significant, $F(1, 94) = 2.37$, $p = .13$, $\eta_p^2 = .025$. Contrary to predictions, the delay did not lead to an increase of negative affect among provoked participants. Results indicate instead dissipation of negative affect over time, but still more negative affect in the provocation than in the no provocation conditions at the beginning of the second part of the experimental session. Besides, participants generally disliked having to wait next door, the effect of delay was not conditional on provocation condition.

Manipulation check trigger. The manipulation check for trigger is a $2 \times 2 \times 2 \times 2$ mixed-model analysis of variance with provocation, delay, and trigger as between-subjects factors and the two general affect measures before the categorization task and after the trigger manipulation as within-subjects factor. All main effects were (marginally) significant. Participants reported higher levels of negative affect before exposition to the trigger than after the trigger manipulation, $F(1, 90) = 5.78$, $p = .018$, $\eta_p^2 = .060$ (cf. Table 13 for means and standard deviations). Provoked participants reported still more negative affect than non-provoked participants, $F(1, 90) = 6.33$, $p = .014$, $\eta_p^2 = .066$, participants in the delay conditions reported marginally significantly higher levels of negative affect than participants in the no delay conditions, $F(1, 90) = 3.27$, $p = .07$, $\eta_p^2 = .035$, and triggered participants reported lower levels of negative affect than non-triggered participants, $F(1, 90) = 4.96$, $p = .03$, $\eta_p^2 = .052$. Among the two-way interactions, only the within-subjects factor × delay interaction was statistically significant, $F(1, 90) = 4.64$, $p = .03$, $\eta_p^2 = .049$, all other Fs < 1.20. Neither the three-way interactions nor the four-way interaction were statistically significant, Fs < 1.12. Simple effect analyses of the within-subjects factor × delay interaction revealed higher levels of negative affect in the delay than in the no delay condition before the categorization task, $F(1, 90) = 5.29$, $p = .02$, $\eta_p^2 = .056$, after the trigger manipulation the difference between delay conditions was however no longer significant, $F(1, 90) = 1.39$, $p = .24$, $\eta_p^2 = .015$. The observed interaction thus seemed to be again due to simple dissipation of negative affect, negative affect that had been elicited by having been sent to wait in an adjacent room for a couple of minutes, but independent from either the comparatively strong initial provocation or the minor triggering provocation. Since the trigger-main effect was not qualified by an interaction of trigger with the within-subjects factor, the difference between trigger conditions already existed before the experimental manipulation was applied. This implies an α-error of random assignment to conditions.

Table 13. Means and standard deviations for general affect measurements before and after the trigger manipulation separately for all eight conditions (Study 4).

	provocation				no provocation			
	trigger		no trigger		trigger		no trigger	
	delay	no delay	delay	no delay	delay	no delay	delay	no delay
general affect$_5$	3.77 (1.42)	3.33 (0.89)	4.67 (1.97)	3.64 (1.60)	2.83 (1.19)	2.64 (0.92)	4.00 (1.60)	3.00 (1.41)
general affect$_6$	3.38 (1.61)	3.25 (1.14)	4.25 (1.71)	3.64 (1.45)	2.75 (1.14)	2.73 (1.62)	3.50 (1.45)	2.92 (1.00)

Note. Standard deviations are specified in brackets. General affect$_5$ was assessed shortly before participants did the minimal group categorization task and general affect$_6$ was assessed after the trigger manipulation.

In order to investigate the possibility of an α-error of randomization, independent *t* tests were conducted for all five measurement points of general affect preceding the trigger manipulation. Whereas the difference between trigger conditions was not statistically significant during the introduction of the anagram task, $t < 1$, all later measurement points revealed higher levels of negative affect in the no trigger conditions than in the trigger conditions, $t(96) = -2.21$, $p = .03$, $t(96) = -1.85$, $p = .07$, $t(96) = -2.52$, $p = .013$, and $t(87.67) = -2.20$, $p = .03$, for the second to fifth measurement, respectively. Both experimenters had been blind to trigger condition. These results thus corroborate the assumption of an α-error of random assignment to conditions.

Preliminary analyses

The effects of provocation, delay, and trigger on all outgroup-related dependent measures were tested using a $2 \times 2 \times 2$ between-subjects ANOVA. There was no statistically significant main effect of delay nor any statistically significant interaction with delay, Fs(1, 90) < 2.17, ps > .14, η_p^2s < .024. For subsequent analyses data were collapsed across conditions of delay. Current rumination was retained as a covariate, though.

The dreadful noise was significantly more often assigned to the outgroup than to the ingroup, $\chi^2(1, N = 98) = 11.80$, $p < .001$. While this indisputably reflected social differentiation, the underlying motive might as well have been establishing best possible

conditions for the ingroup as it might have been doing harm to the outgroup. No expression of a social differentiating tendency was observed with regard to the loudness of the noise exposure set for both groups. A $2 \times 2 \times 2$ mixed-model ANOVA with dB level for ingroup and outgroup as within-subjects factor and provocation and trigger as between-subjects factors revealed neither significant main effects nor any significant interaction, all Fs(1, 94) < 1.69, ps > .19, η_p^2s < .018 (cf. Table 14 for means and standard deviations).

Table 14. Means and standard deviations for the dependent measures separately for provocation and trigger conditions (Study 4).

	provocation		no provocation	
	trigger	no trigger	trigger	no trigger
Db level outgroup	68.60 (9.30)	69.62 (11.57)	72.61 (13.30)	68.33 (12.57)
Δ Db level	-2.80 (10.81)	-1.15 (15.19)	-1.74 (17.03)	0.63 (17.34)
outgroup warmth	4.20 (0.71)	4.26 (0.68)	4.22 (0.78)	3.97 (0.64)
Δ warmth	0.61 (1.36)	0.41 (1.15)	0.45 (0.94)	0.33 (0.98)
outgroup determination	4.00 (1.19)	4.85 (1.16)	4.22 (1.04)	4.08 (1.06)
Δ determination	0.64 (1.73)	-0.42 (1.27)	0.43 (1.56)	0.29 (1.83)
trigger-elicited emotions				
anger	2.72 (1.63)	2.90 (1.64)	1.52 (0.67)	1.60 (0.82)
dejection	2.82 (1.28)	2.69 (1.63)	2.11 (1.57)	2.29 (1.28)
positive emotions	4.10 (1.29)	4.04 (1.30)	4.87 (1.41)	4.54 (1.41)
experimenter evaluation	4.14 (1.52)	3.78 (1.19)	6.09 (0.78)	5.75 (1.31)
identification	4.12 (1.58)	3.96 (1.54)	4.52 (1.45)	3.67 (1.66)
discounting	3.68 (1.52)	3.69 (1.74)	2.43 (1.38)	3.96 (2.01)

Note. Standard deviations are specified in brackets.

Planned contrast analyses

Planned contrast analyses were conducted to test the contrast hypothesis that provocation and trigger manipulation would interact to produce different results in the

provocation-trigger condition as compared with the other conditions. As previously the focal contrast was specified as 3 -1 -1 -1. Current and habitual rumination as well as identification were included as covariates and self-categorization as a fourth covariate for analyses of the attribute ratings. For the analysis of identification and discounting only the rumination measures were included as covariates. Identification with the minimal group emerged only once a marginally significant covariate, $F(1, 90) = 3.32$, $p = .07$, $\eta_p^2 = .036$ for the warmth difference score, in all other analyses identification was no significant covariate, Fs < 2.76, ps > .10, η_p^2s < .030.

The predicted contrast was not significant for the dB level measures, for both focal contrasts Fs < 1 (cf. Table 14 for means and standard deviations). At the same time, the tests for significant residual variance were non-significant, Fs(1, 91) < 1.41, ps > .23, η_p^2s < .016. Likewise, neither rumination covariate was significant, Fs < 1.

The focal contrast was not significant for any attribute measure, Fs(1, 90) < 1.87, ps > .17, η_p^2s < .021 (cf. Table 14 for means and standard deviations). Significant residual variance remained for both determination measures, $F(1, 90) = 7.66$, $p = .007$, $\eta_p^2 = .078$ and $F(1, 90) = 5.97$, $p = .017$, $\eta_p^2 = .062$ for outgroup rating and difference score, respectively. For the warmth ratings no statistically significant residual variance was observed, Fs(1, 90) < 2.59, ps > .11, η_p^2s < .028. Current rumination was a marginally significant covariate for the outgroup warmth rating, $F(1, 90) = 3.11$, $p = .08$, $\eta_p^2 = .033$, apart from that neither rumination covariate was significant for any attribute rating measure, Fs(1, 90) < 2.34, ps > .12, η_p^2s < .026. A statistically significant covariate for all attribute rating measures was self-categorization, Fs(1, 90) > 4.04, ps < .05, η_p^2s > .042.

A 2 × 2 between-subjects ANOVA with provocation and trigger was conducted to explore the significant between-group differences on the determination measures that were not explained by the 3 -1 -1 -1 contrast. All four covariates were included in the ANOVA (cf. the previous planned contrast analysis for test statistics for the covariates). For the outgroup rating the provocation main effect was not significant, $F(1, 90) = 2.09$, $p = .15$, $\eta_p^2 = .023$, but the trigger main effect and the interaction effect were both marginally significant, $F(1, 90) = 3.45$, $p = .07$, $\eta_p^2 = .037$ and $F(1, 90) = 3.65$, $p = .06$, $\eta_p^2 = .039$, respectively. Reliably lower outgroup determination ratings in the trigger as compared with the no trigger condition emerged only for participants who had been previously provoked, $F(1, 90) = 7.56$, $p = .007$, $\eta_p^2 = .078$, for non-provoked participants no such effect was observed, $F < 1$. For the

determination difference score the provocation main effect was again non-significant, $F(1, 90) = 1.39$, $p = .24$, $\eta_p^2 = .015$. Only the trigger main effect was statistically significant, $F(1, 90) = 4.09$, $p = .046$, $\eta_p^2 = .043$, for the interaction effect $F(1, 90) = 1.95$, $p = .17$, $\eta_p^2 = .021$. Participants who had been exposed to the trigger manipulation rated the outgroup as less determined than the ingroup, more so than participants in the no trigger conditions. All in all, the predicted 3 -1 -1 -1 contrast did not account for the observed pattern of means for outgroup-related measures.

Next, the categorical trigger-elicited emotions were subjected to planned contrast analyses with both rumination measures and identification as covariates. The focal contrast was statistically significant only for trigger-elicited anger, $F(1, 91) = 6.61$, $p = .012$, $\eta_p^2 = .068$, however significant amounts of residual variance remained, $F(1, 91) = 17.21$, $p < .001$, $\eta_p^2 = .159$ (cf. Table 14 for means and standard deviations). For dejection neither the focal contrast nor the test for residual variance were significant, $F(1, 91) = 2.49$, $p = .12$, $\eta_p^2 = .027$ and $F(1, 91) = 1.56$, $p = .21$, $\eta_p^2 = .017$, respectively. For the positive emotions measure the focal contrast was not significant, but significant systematic between-group differences remained, $F(1, 91) = 2.31$, $p = .13$, $\eta_p^2 = .025$ and $F(1, 91) = 4.27$, $p = .04$, $\eta_p^2 = .045$. Current rumination was a significant covariate in all three analyses, Fs$(1, 91) > 5.67$, ps $< .02$, η_p^2s $> .059$. Habitual rumination was a marginally significant covariate for trigger-elicited anger, $F(1, 91) = 3.88$, $p = .052$, $\eta_p^2 = .041$, and significant for dejection and positive emotions, Fs$(1, 91) > 7.40$, ps $< .008$, η_p^2s $> .075$.

Omnibus F tests were conducted to explore the significant between-group differences for anger and positive emotions that were not explained by the focal contrast. 2×2 between-subjects ANOVAs with provocation and trigger and the three covariates current and habitual rumination as well as identification were conducted. A significant provocation main effect emerged for anger, $F(1, 91) = 23.05$, $p < .001$, $\eta_p^2 = .202$. Provoked participants reported more trigger-elicited anger than non-provoked participants. No other effect was statistically significant, Fs < 1. Similarly, for positive emotions a main effect of provocation was observed, $F(1, 91) = 5.85$, $p = .02$, $\eta_p^2 = .060$, while no other effect was significant, Fs < 1. Provoked participants also reported weaker experience of positive emotions than non-provoked participants. Still, the effect of provocation was notably stronger for trigger-elicited anger than for trigger-elicited positive emotions.

Evaluation of the experimenter was only analyzed for those participants who indicated that they judged the male experimenter. The focal contrast was highly significant, $F(1, 81) = 12.63$, $p < .001$, $\eta_p^2 = .135$, but at the same time significant residual variance was observed, $F(1, 81) = 38.91$, $p < .001$, $\eta_p^2 = .325$ (cf. Table 14 for means and standard deviations). Current rumination was a highly significant covariate for the evaluation of the experimenter, $F(1, 81) = 9.99$, $p = .002$, $\eta_p^2 = .110$, habitual rumination was no significant covariate, $F(1, 81) = 1.11$, $p = .29$, $\eta_p^2 = .014$. A subsequent 2×2 between-subjects ANOVA with both rumination covariates revealed a significant provocation main effect, $F(1, 81) = 48.49$, $p < .001$, $\eta_p^2 = .374$. Provoked participants evaluated the experimenter less positively than non-provoked participants. Both trigger main effect and interaction effect were not statistically significant, $F(1, 81) = 1.36$, $p = .25$, $\eta_p^2 = .017$ and $F < 1$. The significant focal contrast was thus obtained because of the large effect size of the provocation main effect.

For identification and discounting the focal contrasts were not significant, Fs < 1. Unexplained between-group differences were marginally significant for identification and significant for discounting, $F(1, 92) = 3.61$, $p = .06$, $\eta_p^2 = .038$ and $F(1, 92) = 10.99$, $p = .0013$, $\eta_p^2 = .107$, respectively (cf. Table 14 for means and standard deviations). The rumination covariates were non-significant, all Fs(1, 92) < 1.37, ps > .24, η_p^2s < .015. Subsequently, 2×2 ANOVAs were conducted to explore the between-group differences for identification and the discounting measure. The provocation main effect and the interaction were not significant for identification, Fs(1, 92) < 1.13, ps > .29, η_p^2s < .013. A non-significant tendency was observed for the trigger main effect, $F(1, 92) = 2.69$, $p = .105$, $\eta_p^2 = .028$. Participants in the trigger conditions tended to identify stronger than participants in the no trigger conditions. For discounting the provocation main effect was not significant, $F(1, 92) = 1.45$, $p = .23$, $\eta_p^2 = .016$. The main effect of trigger was statistically significant, $F(1, 92) = 5.39$, $p = .02$, $\eta_p^2 = .055$, participants in the trigger conditions discounted less than participants in the no trigger conditions. The trigger main effect was however qualified by a significant interaction effect, $F(1, 92) = 4.87$, $p = .03$, $\eta_p^2 = .050$. Provoked participants did not differentially discount depending on trigger level, $F < 1$, only among unprovoked participants did those in the trigger conditions discount less than those in the no trigger condition, $F(1, 92) = 9.87$, $p = .002$, $\eta_p^2 = .097$. Across conditions, identification with the minimal group was not statistically different from the mid-point of the scale, $t < 1$.

Planned contrast analyses with post-hoc affective factors

As in the previous studies, analyses with post-hoc affective factors were conducted next. Following the same procedure circumstantiated for Studies 2 and 3, four level variables representing anger[35], dejection, and the positive emotions[36] for both measurement points, respectively, were computed by crossing the corresponding dichotomized measures. To explore whether participants who received high versus low scores on the composite indices for core affect were indeed significantly different from one another on both core affect dimensions, *t* tests were computed for both dimensions, separately. Participants who received a high core affect anger score reported reliably higher arousal than participants who received a low core affect anger score, $M = 4.84$, $SD = 0.99$ and $M = 2.61$, $SD = 1.18$, respectively, $t(88) = 9.70$, $p < .001$, $d = 2.04$. The difference between participants who received a high versus low core affect anger score on the valence dimension was likewise statistically significant, $M = 3.89$, $SD = 1.48$ and $M = 2.11$, $SD = 0.80$, $t(65.22) = 7.05$, $p < .001$, $d = 1.51$. For the core affect dejection score, too, differences between participants who received a high versus low score were statistically significant on both dimensions, $M = 4.92$, $SD = 1.40$ and $M = 3.72$, $SD = 1.38$, $t(96) = 4.29$, $p < .001$, $d = 0.86$ for the arousal dimension and $M = 3.65$, $SD = 1.34$ and $M = 2.22$, $SD = 1.07$, $t(95.08) = 5.88$, $p < .001$, $d = 1.17$ for the valence dimension. With regard to the core affect measure representing positive emotions, the difference between participants who received a high versus low score was marginally significant on the arousal dimension, $t(96) = -1.84$, $p = .07$, $d = -0.37$. Participants who received a high core affect positive emotions score reported lower levels of arousal than participants who received a low score, $M = 3.35$, $SD = 1.45$ and $M = 3.90$, $SD = 1.52$, respectively. On the valence dimension, participants who received a high score reported significantly less negative valence that participants who received a low score, $M = 1.83$, $SD = 0.38$ and $M = 4.00$, $SD = 1.19$, $t(62.72) = -12.48$, $p < .001$, $d = -2.40$. Since no hypotheses pertained to the level of arousal when positive emotions were concerned, the observed marginal difference is rather unproblematic.

[35] For core affect anger, 8 participants who received exactly the median score are not represented by the dichotomized variable.

[36] The nested median-split of trigger-elicited positive emotions necessitated exclusion of 9 participants who received exactly the median score in order to avoid an unequal distribution.

Identification was no longer included as a covariate in the planned contrast analyses with the post-hoc affective factors, the group-based emotions were expected to contain the impact of identification. First, the analyses for the anger factor are reported, next the analyses for the dejection factor, and finally for positive emotions.

In the planned contrast analyses with the post-hoc anger factor, no systematic variance was observed for the outgroup dB level, for focal contrast as well as residual variance and both covariates Fs < 1. For the difference score, however, the focal contrast was significant, $F(1, 84) = 5.44$, $p = .02$, $\eta_p^2 = .061$, no other effect was significant, Fs < 1. The 3 -1 -1 -1 focal contrast parsimoniously described the observed between-group differences, participants who received high scores for both anger measures chose lower dB levels for the ingroup as compared with the outgroup than all other participants. As the previous analysis indicates, this contrast is due to the reduced dB level participants with high anger scores after provocation and trigger selected for their ingroup, not to increased dB levels set for the outgroup.

Focal contrasts for the attribute ratings were all non-significant, Fs(1, 83) < 1.11, ps > .29, η_p^2s < .14. Marginally significant residual variance only remained for outgroup warmth, $F(1, 83) = 3.27$, $p = .07$, $\eta_p^2 = .038$, all other tests were non-significant, Fs(1, 83) < 1.36, ps > .24, η_p^2s < .017. With regard to the rumination covariates, only current rumination slightly missed conventional levels of significance for outgroup warmth, $F(1, 83) = 3.95$, $p = .0502$, $\eta_p^2 = .045$, all other Fs(1, 83) < 1.40, ps > .24, η_p^2s < .017. Self-categorization was a marginally significant covariate for the outgroup determination rating, $F(1, 83) = 3.20$, $p = .08$, $\eta_p^2 = .037$, and a significant covariate for the other three measures, Fs(1, 83) > 7.20, ps < .01, η_p^2s > .079. Exploration of the marginally significant residual variance for outgroup warmth with a 2 × 2 between-subjects ANOVA revealed a marginally significant main effect of trigger-elicited anger, $F(1, 83) = 2.87$, $p = .09$, $\eta_p^2 = .033$, the main effect of core affect anger and the interaction were both non-significant, Fs < 1. Participants who reported high trigger-elicited anger rated the outgroup as less warm than participants who reported low trigger-elicited anger.

The focal contrast was highly significant for the experimenter evaluation, $F(1, 75) = 16.37$, $p < .001$, $\eta_p^2 = .179$, but it did not account for all systematic between-group differences. Significant amounts of residual variance remained, $F(1, 75) = 6.35$, $p = .014$, $\eta_p^2 = .078$. Current rumination was a significant covariate of the experimenter evaluation, F(1,

75) = 10.01, p = .002, η_p^2 = .118, but habitual rumination was not significant, F < 1. A 2 × 2 between-subjects ANOVA was conducted to investigate the between-group differences. A significant main effect of core affect anger was revealed, F(1, 75) = 16.02, p < .001, η_p^2 = .160, and also a significant main effect of trigger-elicited anger, F(1, 75) = 15.59, p < .001, η_p^2 = .157. The interaction effect was not significant, F < 1. Participants who reported high core affect anger evaluated the experimenter less favorably than participants who reported low core affect anger. Similarly, participants who reported high trigger-elicited anger evaluated the experimenter less favorably than participants who reported low trigger-elicited anger. As in Study 3, trigger-elicited anger had been nested into core affect anger so that it did not simply represent a further measurement point of core affect anger.

For identification, neither the focal contrast nor the test for residual variance were statistically significant, Fs(1, 84) < 2.01, ps > .16, η_p^2s < .024. The focal contrast, however, only slightly missed conventional levels of statistical significance for discounting, F(1, 84) = 3.85, p = .053, η_p^2 = .044. Participants with high anger scores for both measurement points discounted more than all other participants. This focal contrast parsimoniously accounted for the observed between-group differences, no significant residual variance remained, F(1, 84) = 1.46, p = .23, η_p^2 = .017. The rumination covariates were not statistically significant for identification or discounting, Fs(1, 84) < 2.28, ps > .13, η_p^2s < .027.

Anger participants experienced predominantly resulted in negative evaluations of the experimenter. Although a statistically significant 3 -1 -1 -1 contrast was obtained for the dB difference measure, the effect was driven by the dB level set for the ingroup. On the other hand, as in Study 3, experienced anger led participants to distance themselves from the minimal ingroup.

In the planned contrast analyses with the post-hoc dejection factor, a significant focal contrast for outgroup dB level was observed, F(1, 92) = 4.42, p = .04, η_p^2 = .046. However, significant amounts of residual variance remained, F(1, 92) = 4.16, p = .04, η_p^2 = .043. For the difference score the focal contrast only showed a non-significant tendency, F(1, 92) = 2.63, p = .11, η_p^2 = .028, the test for residual variance was marginally significant, F(1, 92) = 3.74, p = .06, η_p^2 = .039. The rumination measures were no significant covariates, Fs(1, 92) < 1.16, ps > .28, η_p^2s < .013. 2 × 2 between-subjects ANOVAs were conducted to explore the between-group differences for both dB level measures. The main effect of core affect dejection was significant for the outgroup dB level, F(1, 92) = 6.82, p = .011, η_p^2 = .069. The

main effect of trigger-elicited dejection and the interaction effect were not significant, $F(1, 92) = 2.15$, $p = .15$, $\eta_p^2 = .032$ and $F < 1$, respectively. Notably, participants with high core affect dejection scores assigned lower noise levels to the outgroup than participants with low core affect dejection scores. Similarly, a significant main effect of core affect dejection was obtained for the difference score, $F(1, 92) = 6.41$, $p = .013$, $\eta_p^2 = .065$, while both other effects were non-significant, Fs < 1. Participants with high core affect dejection scores set descriptively higher dB levels for the ingroup than for the outgroup whereas the opposite was true for participants with low core affect dejection scores. Anger and dejection thus markedly differently related to outgroup treatment.

For the attribute ratings, neither focal contrasts nor tests for residual variance were significant, Fs(1, 91) < 1.63, ps > .20, η_p^2s < .018. Current as well as habitual rumination were no significant covariates for all attribute rating measures, Fs(1, 91) < 2.52, ps > .11, η_p^2s < .027. As the only exception, current rumination was a significant covariate for outgroup warmth, $F(1, 91) = 4.17$, $p = .04$, $\eta_p^2 = .044$. Self-categorization was a marginally significant covariate for outgroup determination, $F(1, 91) = 2.84$, $p = .095$, $\eta_p^2 = .030$, and a significant covariate for the other three attribute measures, Fs(1, 91) > 8.52, ps < .005, η_p^2s > .085.

For the experimenter evaluation, the focal contrast was not significant, $F(1, 82) = 1.19$, $p = .28$, $\eta_p^2 = .014$, instead significant residual variance was observed, $F(1, 82) = 10.90$, $p < .01$, $\eta_p^2 = .117$. Current rumination was a significant covariate, $F(1, 82) = 9.94$, $p = .002$, $\eta_p^2 = .108$, habitual rumination was no significant covariate, $F < 1$. Exploring the residual variance with a 2×2 between-subjects ANOVA, the core affect dejection main effect emerged non-significant, $F(1, 82) = 1.12$, $p = .29$, $\eta_p^2 = .013$. However, a significant main effect of trigger-elicited dejection was observed, $F(1, 82) = 7.58$, $p = .007$, $\eta_p^2 = .085$. Participants with high as compared with low trigger-elicited dejection scores rated the experimenter less favorably. The interaction emerged marginally significant, $F(1, 82) = 3.52$, $p = .06$, $\eta_p^2 = .041$. No difference depending on the intensity of trigger-elicited dejection was observed for participants who experienced high core affect dejection, $F < 1$. Among participants who experienced low core affect dejection instead, the experimenter evaluation was significantly less favorable when trigger-elicited dejection was high than when it was also low, $F(1, 82) = 10.54$, $p = .002$, $\eta_p^2 = .114$.

For identification and discounting neither focal contrasts nor tests for residual variance were statistically significant, Fs(1, 92) < 2.27, ps > .13, η_p^2s < .025. Habitual rumination was a marginally significant covariate for discounting, $F(1, 92) = 3.09$, $p = .08$, $\eta_p^2 = .033$, no other rumination covariate was significant, Fs(1, 92) < 1.19, ps > .27, η_p^2s < .013.

Dejection participants experienced after the provocation manipulation accounted for observed between-group differences on the dB level measures. Interestingly, high core affect dejection was associated with good instead of bad treatment of the outgroup. Conversely, core affect dejection was not directly related to the evaluation of the experimenter. Instead, core affect dejection moderated the association between trigger-elicited dejection and the experimenter evaluation.

Finally, the planned contrast analyses were conducted with the post-hoc factor positive emotions. The focal contrasts for both dB level measures were non-significant, Fs(1, 83) < 1.35, ps > .24, η_p^2s < .016. Marginally significant amounts of residual variance remained for outgroup level, $F(1, 83) = 3.40$, $p = .07$, $\eta_p^2 = .039$, but not for the difference score, $F < 1$. Neither rumination measure was a significant covariate, Fs(1, 83) < 2.20, ps > .14, η_p^2s < .026. In a subsequent 2 × 2 between-subjects ANOVA exploring the residual variance for the outgroup dB level, the main effect of trigger-elicited positive emotions emerged marginally significant, $F(1, 83) = 3.72$, $p = .06$, $\eta_p^2 = .043$, for both other effects Fs < 1. Participants who reported high as compared with low trigger-elicited positive emotions set higher dB levels for the outgroup.

For the attribute ratings no focal contrast was significant, Fs < 1, neither was any residual variance observed, Fs(1, 82) < 1.13, ps > .29, η_p^2s < .014. Current as well as habitual rumination were no significant covariates. The only rumination covariate for that an $F > 1$ was observed was a non-significant tendency for current rumination and the dependent variable outgroup warmth, $F(1, 82) = 2.68$, $p = .105$, $\eta_p^2 = .032$. Self-categorization was a significant covariate for all attribute rating measures, Fs(1, 82) > 5.09, ps < .03, η_p^2s > .058.

A significant focal contrast was revealed for evaluation of the experimenter, $F(1, 75) = 5.78$, $p = .02$, $\eta_p^2 = .072$, but significant residual variance remained, $F(1, 75) = 5.01$, $p = .03$, $\eta_p^2 = .063$. As in all previous analyses of the experimenter evaluation, current rumination was a significant covariate, $F(1, 75) = 7.26$, $p = .009$, $\eta_p^2 = .088$, and habitual rumination was a non-significant covariate, $F < 1$. As in the analysis with the post-hoc anger factor, in the

subsequently conducted 2 × 2 between-subjects ANOVA both main effects were statistically significant, $F(1, 75) = 4.92$, $p = .03$, $\eta_p^2 = .062$ for the provocation main effect and $F(1, 75) = 5.67$, $p = .02$, $\eta_p^2 = .070$ for the trigger main effect. The interaction was not significant, $F < 1$. For both measures strong positive emotions were associated with a more favorable evaluation of the experimenter as compared with low intensity positive emotions.

For identification, the focal contrast was significant, $F(1, 83) = 4.86$, $p = .03$, $\eta_p^2 = .055$; it was marginally significant for discounting, $F(1, 83) = 3.51$, $p = .06$, $\eta_p^2 = .041$. Participants with low scores for positive emotions at both measurement points were significantly lower identified and discounted their minimal group more than all other participants. No significant residual variance remained, Fs$(1, 83) < 1.30$, ps $> .25$, η_p^2s $< .016$, indicating that the focal contrasts described the between-group differences well. Neither current nor habitual rumination were significant covariates for identification or discounting, Fs$(1, 83) < 1.98$, ps $> .16$, η_p^2s $< .024$.

The intensity of positive emotions participants experienced produced largely reverse results than dejection. High scores for trigger-elicited positive emotions were associated with higher dB levels set for the outgroup. At the same time, high scores for trigger-elicited positive emotions as well as high core affect positive emotions scores were associated with better evaluation of the experimenter. Mirroring results for anger, absence of positive emotions led participants to reduce personal relevance of the new group and identification with that group.

Exploratory analyses

Simple linear regression analyses investigated whether and how the attribute ratings were related to outgroup derogation. As in the previous study, the ratings of the outgroup as determined and warm were both no significant predictors of the dB level participants set for the outgroup, $\beta = .06$ and $\beta = -.05$, ts < 1, R^2s $< .004$, Fs < 1.

Finally, the influence of the rumination covariates was explored. Current rumination was dichotomized and introduced as a quasi-experimental factor in 2 × 2 × 2 ANOVAs with provocation and trigger as further between-subjects factors. Analyses were run for the dependent variables trigger-elicited emotions and experimenter evaluation. A significant main effect of provocation was revealed for trigger-elicited anger, $F(1, 90) = 25.23$, $p < .001$, $\eta_p^2 = .219$. Provoked participants reported higher levels of trigger-elicited anger than non-

provoked participants. Additionally, the main effect of current rumination showed a non-significant tendency, $F(1, 90) = 2.72$, $p = .103$, $\eta_p^2 = .029$. High ruminators tended to experience higher levels of trigger-elicited anger than low ruminators. However, both two-way interactions of current rumination with provocation and trigger qualified the main effect, $F(1, 90) = 4.16$, $p = .04$, $\eta_p^2 = .044$ and $F(1, 90) = 3.00$, $p = .09$, $\eta_p^2 = .032$, for the interaction with provocation and trigger, respectively. Simple comparisons revealed that provoked participants experienced significantly more trigger-elicited anger than non-provoked participants when current rumination was high, $F(1, 90) = 21.21$, $p < .001$, $\eta_p^2 = .191$. When rumination was low, provoked participants also experienced reliably more trigger-elicited anger than non-provoked participants, but the effect was considerably smaller, $F(1, 90) = 5.40$, $p = .02$, $\eta_p^2 = .057$. Rumination was thus demonstrated to increase the impact of the initial provocation on participants' anger experience. The simple effects of trigger were not statistically significant, Fs$(1, 90) < 2.40$, ps $> .12$, η_p^2s $< .026$. The main effect of trigger as well as the provocation × trigger interaction and the three-way interaction were non-significant, Fs < 1.

For trigger-elicited dejection, the main effect of provocation was marginally significant, $F(1, 90) = 3.71$, $p = .06$, $\eta_p^2 = .040$. Provoked participants experienced more dejection than unprovoked participants. The main effect of current rumination was statistically significant, $F(1, 90) = 5.95$, $p = .02$, $\eta_p^2 = .062$. Dejection scores were higher for high as compared with low rumination. No other effect was statistically significant, Fs$(1, 90) < 2.05$, ps $> .15$, η_p^2s $< .023$.

For positive trigger-elicited emotions, again only the two main effects of provocation and current rumination were (marginally) significant, all other Fs > 1. Provoked participants experienced less positive emotions than unprovoked participants, $F(1, 90) = 5.30$, $p = .02$, $\eta_p^2 = .056$, and less positive emotions where reported when rumination was high than when it was low, $F(1, 90) = 3.88$, $p = .052$, $\eta_p^2 = .041$.

For the experimenter evaluation, all three main effects were (marginally) significant. Provoked participants evaluated the experimenter less favorably than unprovoked participants, $F(1, 90) = 62.75$, $p < .001$, $\eta_p^2 = .411$. Participants who were exposed to the trigger as compared with no trigger evaluated the experimenter more favorably, $F(1, 90) = 2.80$, $p = .098$, $\eta_p^2 = .030$. Although contrary to prediction, this effect is consistent with the observed α-error of random assignment to the trigger conditions. Thirdly, the experimenter

was evaluated less favorably when rumination was high as compared with when rumination was low, $F(1, 90) = 3.65$, $p = .06$, $\eta_p^2 = .039$. A significant two-way interaction of provocation and current rumination qualified the respective main effects, $F(1, 90) = 4.70$, $p = .03$, $\eta_p^2 = .050$. Simple comparisons revealed that the effect of provocation was considerably stronger for high rumination as compared with low rumination, $F(1, 90) = 43.29$, $p < .001$, $\eta_p^2 = .325$ and $F(1, 90) = 20.08$, $p < .001$, $\eta_p^2 = .182$, respectively. No other effect was statistically significant, Fs < 1.

The analyses of trigger-elicited emotions were next repeated with the habitual rumination variable. Habitual rumination was subjected to a median-split and entered as a quasi-experimental factor in a $2 \times 2 \times 2$ between-subjects ANOVA with the additional factors provocation and trigger. In the analysis of trigger-elicited anger, however, only the provocation main effect emerged statistically significant, $F(1, 90) = 22.11$, $p < .001$, $\eta_p^2 = .197$, all other Fs$(1, 90) < 1.04$, ps $> .31$, η_p^2s $< .012$. Provoked participants reported higher levels of trigger-elicited anger than non-provoked participants. For trigger-elicited dejection instead, a significant main effect of habitual rumination was revealed next to the significant main effect of provocation, $F(1, 90) = 10.05$, $p = .002$, $\eta_p^2 = .100$ and $F(1, 90) = 4.54$, $p = .04$, $\eta_p^2 = .048$, respectively. All other Fs < 1. More dejection was reported when habitual rumination was high as compared with when habitual rumination was low and provoked participants reported more dejection than non-provoked participants. For the positive trigger-elicited emotions, again the provocation main effect and the habitual rumination main effect were statistically significant, $F(1, 90) = 7.70$, $p = .007$, $\eta_p^2 = .079$ and $F(1, 90) = 15.02$, $p < .001$, $\eta_p^2 = .143$, respectively. Provoked participants experienced less positive emotions than non-provoked participants. For high habitual rumination, less positive emotions were experienced than for low habitual rumination. Additionally, the three-way interaction was marginally significant, $F(1, 90) = 3.16$, $p = .08$, $\eta_p^2 = .034$. All other effects were non-significant, Fs$(1, 90) < 1.08$, ps $> .30$, η_p^2s $< .012$. Exploration of the three-way interaction revealed significantly less positive emotions for high as compared with low scores for habitual rumination in the provocation-trigger condition, $F(1, 90) = 5.30$, $p = .02$, $\eta_p^2 = .056$. At the same time, positive emotions were significantly lower for high as compared with low scores for habitual rumination in the no provocation-no trigger condition, $F(1, 90) = 11.72$, $p < .001$, $\eta_p^2 = .115$. Both other simple effects of habitual rumination were non-significant, Fs$(1, 90) < 2.00$, ps $> .16$, η_p^2s $< .022$.

7.2.3 Summary

In the provocation-delay-trigger condition, trigger-elicited anger and outgroup derogation were expected to be stronger than in all other conditions. The delay factor did however not produce the predicted interactive effect with provocation. Apparently, participants did not spent the delay ruminating about the initial provocation. Across conditions, participants may have been annoyed since they had no clue how long it would take to fix the computer, that is, how much additional time they would have to spend.

Nonetheless, other than in Study 3, the initial provocation induced higher levels of arousal and more negative valence in the provocation than in the no provocation conditions. This can be conceived as a successful manipulation of anger. The most potent anger-arousing aspect of the initial provocation seems to have been the aversive and stressful conditions. The illegitimate act of the experimenter again seemed to have largely failed to elicit an anger response. Yet, an alternative interpretation of the absence of a further increase of negative affect after the interaction with the experimenter in the provocation conditions is, that participants' relief about the end of the anagram task counterbalanced the anger reaction to the experimenter's action.

A severe impediment for the investigation of the interactive effect of provocation and trigger on trigger-elicited emotions and subsequent behavior is the apparent α-error of random assignment to trigger conditions. Post-hoc analyses with quasi-experimental factors are not subject to the same error. Indeed, the predicted 3 -1 -1 -1 contrast was revealed for the difference between dB level set for ingroup and outgroup in an analysis with a post-hoc anger factor. Contrary to expectations, closer inspection of the obtained effect disclosed that it was produced by the dB level participants set for the ingroup, the dB level for the outgroup did not differ across conditions. An observed differentiation between ingroup and outgroup was in the current study an expression of ingroup favoritism rather than outgroup derogation.

The dejection or the positive emotions factor did not analogously account for differential treatment of ingroup and outgroup. Unexpectedly though, higher levels of outgroup derogation were observed for low as compared with high core affect dejection and for high as compared with low trigger-elicited positive emotions. At the same time, low as compared with high core affect dejection and high as compared with low trigger-elicited positive emotions were associated with a more favorable evaluation of the experimenter. Furthermore, core affect valence was associated with the experimenter evaluation, high levels

of positive valence were associated with a more favorable evaluation of the experimenter. Whereas it is not extremely surprising that high versus low levels of dejection and positive emotions show opposite effects, the direction of the effects on outgroup treatment is rather unexpected. It is not consistent with theorizing that outgroups increasingly suffer at the hands of people who experience highly positive emotions or low levels of dejection. Interestingly, reverse effects of dejection and positive emotions, respectively, on outgroup treatment and on experimenter evaluation occurred. Possibly, both potential targets lend themselves differentially well to the execution of emotion appropriate behavior (cf. Maitner et al., in press). For the anger factor, data on the experimenter evaluation were consistent with the view that anger can lead to aggression, the experimenter was evaluated less favorably when levels of core effect anger and of trigger-elicited anger, respectively, were high as compared with low. On top of this, paralleling results of Study 3, high levels of anger and low levels of positive emotions for both respective measures led to more discounting than the other patterns of experienced affect.

Although the delay factor appeared as no efficient manipulation of rumination, measurement of current rumination demonstrated that recurrent thoughts about the initial provocation increased its affective and behavioral impact. It has to be noted, however, that the item wording did not explicitly refer to the initial provocation. Thus, it remains speculative what the thoughts that were coming to participants' minds were concerned with. The effect of provocation on trigger-elicited anger and also on evaluation of the experimenter was substantially increased through rumination. For dejection and the positive emotions, no such interactive effect occurred, but mere rumination, current as well as habitual, increased dejection and decreased positive emotions.

One potentially critical aspect of both laboratory studies is the fact that the experimenter, the source of the original provocation, remained present throughout the experimental session. (S)He was still available as a target for aggression, participants may have intended to confront the experimenter after the experiment was over. A change of experimenters might be more efficient when performed at a different point in time. The first experimenter could actually be the nasty one, insufficiently instruct participants, and tear their voucher forms. The first experimenter could leave once the alleged technical problem occurs to call another person and not return. That way, the intended illegitimacy would be somewhat extenuated, but the unfair experimenter would be unmistakably unavailable for an aggressive response.

It might further have been useful to have let participants listen to the noises "construction site" and "meadow in the summer" before asking participants to assign the groups to the noise conditions and to set the dB levels. One needs to be aware, though, that suspicion might have been raised had too much emphasis been placed on the assignment of noises.

8 GENERAL DISCUSSION

Negative behavior in intergroup relations is not well understood to date. The present thesis proposed one mechanism potentially underlying outgroup derogation. Specifically, group-based anger (i.e., anger felt on behalf of one's group; Smith, 1999) was proposed to constitute an affective route to outgroup derogation.

8.1 Overview of the Presented Studies

Four experimental studies, two questionnaire studies and two laboratory studies, aimed at showing triggered displacement (Miller, Pedersen, Earleywine, & Pollock, 2003; Miller & Marcus-Newhall, 1997) of outgroup derogation and investigated the role of group-based anger in the generation of outgroup derogation. Whereas the questionnaire studies related to naturally occurring groups, the laboratory studies introduced minimal groups (Tajfel et al., 1971). Furthermore, Studies 2 through 4 utilized core affect (Russell, 2003) measures to assess the affective reaction to the first experimental manipulation.

An initial comparatively strong and a subsequent minor provocation, the triggering provocation, were manipulated orthogonally. In the questionnaire studies, both manipulations were group-based, in the laboratory studies, the initial provocation was person-based. An interactive effect of both provocations was expected to produce more outgroup derogation in the provocation-trigger condition than in the other three conditions. Indeed, in Study 1, participants in the provocation-trigger condition more strongly agreed with statements demanding outgroup derogating measures than participants in the other three experimental conditions. In Study 2, the 3 -1 -1 -1 contrast with experimental factors was only observed for the perception of threat posed by the outgroup. Trigger-elicited group-based anger significantly predicted outgroup derogation and perceived threat in both questionnaire studies. With the exception of outgroup derogation in Study 2, provocation-elicited anger was revealed to moderate the effect of trigger-elicited group-based anger on outgroup derogation and perceived threat, respectively.

The laboratory studies introduced minimal groups. Social differentiation was observable in both studies, but participants in the provocation-trigger condition did not treat the outgroup more negatively than participants in the other conditions. In Study 3, post-hoc affective factors revealed that high levels of negative emotions and also low levels of positive emotions after both experimental manipulations produced more discounting of one's minimal

group than other patterns of experienced affect. Thus, the aversive situation was evaded. The effect was most pronounced for anger. However, the post-hoc provocation-elicited anger factor cannot unequivocally be interpreted as representing anger, participants who received high versus low core affect anger scores did not score reliably different on the core affect dimension arousal. In Study 4, the post-hoc anger factor produced the highest noise intensity set for the outgroup relative to the ingroup when anger was high after both experimental manipulations. However, this maximal difference between ingroup and outgroup level when participants' anger was high at both measurement points resulted from the noise intensity set for the ingroup. The dB level participants set for the outgroup was not conditional on participants' anger experiences. Additionally, like in Study 3, a 3 -1 -1 -1 contrast effect of anger and positive emotions emerged for discounting of group membership.

8.2 Integration and Implications of the Presented Studies

The questionnaire studies demonstrated that appraisal of naturally occurring intergroup relations and derogation of meaningful societal groups can change as a consequence of comparatively minor influences. A trivially provoking report about immigration in conjunction with a previous unrelated provocation ensued increased perception of threat posed by foreigners. Increased perception of threat posed by the elderly and foreigners, respectively, was predicted by trigger-elicited anger when provocation-elicited anger was high. In other words, conditional on an unrelated previous affective state did the anger reaction that was elicited by the outgroup predict appraisal of that outgroup as threatening. Apparently, the affective route to outgroup derogation does not produce an emotional act independent from cognition. The affective route to outgroup derogation also altered appraisals of the intergroup relation. Emotion and cognition thus seem inextricably linked. On the basis of deteriorated appraisal outgroup derogation can be reasonable behavior, it can be perceived as legitimate.

A previous comparatively strong provocation is not the only factor capable of preparing the grounds for distorted appraisals and disproportionately aggressive responses to targets providing a minor provocation. A personality variable, for example, that has been shown to serve a similar function as the initial strong provocation is narcissism. Persons high in narcissism reacted aggressively towards targets that provided a bad evaluation whereas persons low in narcissism were less likely to aggress against that target (Bushman & Baumeister, 1998). Interestingly, persons low in narcissism were also less likely than persons

high in narcissism to perceive the bad evaluation as threatening, suggesting that the evaluation-threat-aggression network is chronically activated in narcissists. Stereotypes and prejudice may similarly imply chronically increased accessibility of knowledge structures that predispose towards augmentation of aggressive responses to particular targets who provide minor provocations. Highly prejudiced persons may be particularly susceptible to minor triggers delivered through the respective outgroup. In intergroup relations that are characterized by conflict, the mere presence or thought of the outgroup might suffice as a triggering incident. To the extent that quite insignificant incidents are appraised as provoking, the associative network is strengthened and aggressive responses are increasingly easily elicited. Such a perpetuating process is probably not easily disrupted, particularly as appraisals of the intergroup relation seem subject to the same influences. Whereas the triggered displaced aggression research paradigm might seem to rely on highly specific conditions, the addressed mechanism is much more widely applicable.

In Study 1, the initial provocation may not have elicited genuine affect. Possibly, semantic knowledge rather than experiential knowledge was activated by the provocation manipulation (cf. Robinson & Clore, 2002). In Study 2, experienced affect as a consequence of the initial provocation did not differ across conditions. It may have been the case that both levels of the provocation manipulation activated identical or closely related cognitive networks, resulting in similar affective reactions. The illegitimate treatment by the experimenter that was intended as the core component of the initial provocation in the laboratory studies did not seem to contribute substantially to the elicitation of anger. Potentially as a consequence of the experimenter's social role, participants seemed to have rationalized the experimenter's behavior. More negatively valenced affect and, in Study 4, higher arousal in the provocation than in the no provocation conditions were elicited by the strenuous anagram task and the noise exposure. The reverse effect for core affect arousal in Study 3 can be interpreted to indicate that participants in the provocation conditions were rather dejected than angry.

A contrast effect had been observed for the trigger-elicited emotions in Study 1. Higher levels of trigger-elicited anger and dejection were observed in the non-provoking conditions than in the provoking conditions, independent of the level of trigger. Little systematic variance for the trigger-elicited emotions was observed in Study 2. In the laboratory studies, provocation-elicited affect prevailed. Assimilation effects on methodological grounds were precluded by the use of dissimilar affect measures. The

positively skewed distributions for trigger-elicited negative emotions testify to the weak affective impact of the triggering manipulation. Overall, it appears difficult to elicit genuine affect and even more difficult to produce the interactive effect on emotions that was expected in the provocation-trigger condition.

Nevertheless, affective reactions to the second experimental manipulation were not independent from the affective reaction to the first experimental manipulation. In our daily lives, the affective impact of distinct episodes might be even less easily isolated. I would argue, that emotions evoked by different incidents are more likely to blend in real live than in experimental situations, because being a research participant increases monitoring of one's behavior and reactions to the experimental material. Heightened self-awareness is likely to increase corrections for suspected influences from affect resulting from unrelated episodes. In daily life, people are less likely to reflect whether any persisting affect stemming from an unrelated episode might affect current behavior.

In the laboratory studies, less so in Study 3 than in Study 4, affect stemming from a person-based provocation was transferred to an intergroup context. Evaluation of and behavior towards the outgroup was in part an effect of a previous person-based provocation. These results again hint at the wide applicability of the researched mechanism. Derogation of outgroups may be enhanced by previously elicited anger irrespective of its source. Nonetheless, parameters like similarity of target outgroup and original provocateur are likely to moderate the effect (Marcus-Newhall et al., 2000).

Tentative evidence on the impact of rumination on trigger-elicited affect and on behavior was obtained in Study 4. Whereas the manipulation of rumination was not successful, measured current and habitual rumination increased experienced dejection and decreased the experience of positive emotions. Most importantly, interaction effects of current rumination and provocation emerged for trigger-elicited anger and the experimenter evaluation. The effect of provocation was much stronger for high as compared with low rumination. The results thus further corroborate the notion that rumination contributes to triggered displacement of aggression (Miller et al., 2003; Bushman et al., 2005). Although the behavioral response was not displaced on the outgroup but directed at the source of the original provocation, the current findings demonstrate how rumination can impact experienced affect. Provoked participants who strongly ruminated did not simply maintain the aggressive internal state but they actually wound themselves up.

Anger, dejection, and fear are categorical terms that facilitate communication about affect, but experiential affect might not be a matter of distinct categories. On the contrary, it is questionable whether there actually is such a thing as discrete emotion (Barrett, 2006). People might cluster similar emotional episodes that then receive a common label; those labels are socially validated. On top of this, antecedent events are commonly not unidimensional. Usually, different appraisal dimensions can be applied that result in mixtures of emotions as when parents whose children leave for college are proud but at the same time sad.

The concept arousal focus can explain the observed tendency of like-valenced emotions to co-occur (Barrett, 1998). The emphasis people place on arousal as a property of their experience to differentiate between like-valenced emotions varies tremendously and some persons basically ignore the arousal dimension (Barrett, 1998, 2004; Feldman, 1995). Berkowitz (1990) likewise stressed the point that anger is frequently accompanied by other negative emotions. Still, with regard to their effects on appraisal of intergroup relations or outgroup derogation anger and dejection were clearly not interchangeable in the present studies. Arousal might be perceived as the energizing, the action-fuelling component of affect (cf. Zillmann, 1983).

The usage of dissimilar measures for the two assessments of affective reactions to the experimental manipulations apparently precludes contrast or assimilation effects on methodological grounds. The pre-tests revealed the verbal as well as the pictorial core affect scale as suitable measures to assess arousal and affective valence independently. In the experimental studies, however, the core affect dimensions were significantly correlated for both modes of assessment.

The core affect dimensions further appear differentially accessible. Measurement of arousal proved far more difficult than measurement of valence as indicated by the comparably weak reliability of the verbal arousal measure. Reflecting one's current state of arousal is a rather unusual task, people are more used to think about their affective state in terms of good or bad or in terms of categorical emotions. Results from Barrett, Quigley, Bliss-Moreau, and Aronson (2004) indicate that a person's arousal focus is associated with its interoceptive sensitivity. It is however questionable whether the ability to reflect and report one's current affective state systematically relates to the impact affect has on behavior.

The attributes in Study 2 related to stereotype-content, hence there was a semantic correspondence between attribute rating and perceived threat as well as outgroup derogation. Indeed, the attribute rating predicted perceived threat and outgroup derogation for participants who had experienced high core affect anger. In the laboratory studies, the selection of attributes was semantically unrelated to other measures. As the groups were minimal, no stereotypes existed about them. In analogy to Ajzen and Fishbein (1977) who postulated equal specificity of attitudinal and behavioral component as a critical condition for their correspondence, the strength of the association of devaluating the outgroup on particular attributes with outgroup derogating behavior might be conditional on how well they match. It would thus not be particularly surprising that attribute ratings of the minimal outgroup and their treatment were not significantly associated. On the other hand, the laboratory studies indicate that devaluation of the outgroup does not occur indiscriminately on any attribute. The only effect on attribute ratings found in both studies was a main effect of trigger-elicited anger on the outgroup warmth rating. Participants who had experienced high trigger-elicited anger rated the outgroup less warm than participants who had experienced low trigger-elicited anger. Devaluation of the outgroup as low on the warmth dimension fits participants' affective state. Moreover, the finding in Study 2 that attribute ratings only predicted outgroup derogation when core affect anger was high further suggests the possibility that increased reliance on the simple heuristic cue stereotype may have produced the effect (cf. Bodenhausen et al., 1994).

An interesting perspective on the present studies is offered by the conception of aggression as goal-oriented behavior (Denzler, 2006). Such a conception is consistent with the idea that particular behaviors are emotion-appropriate and their execution diminishes the experience of the respective emotion (Maitner et al., in press). This alludes again to a question of fit. Outside the laboratory, outgroups may be more prone to become a target of displaced derogation to the extent that derogation of the particular outgroup fulfills a goal or a need of the aggressor. Highly prejudiced persons can thus be assumed to attain more goal-fulfillment through negative treatment of an outgroup than less prejudiced persons. Moreover, goal-attainment is experienced as rewarding, hence further consolidating prejudice and outgroup derogating tendencies. Explicitly negative treatment of other persons is not necessarily in conflict with a pleasurable experience. In contrast, increased dorsal striatal activity has been observed in participants punishing a defector in an economic exchange; the

striatum is a subcortical brain region implicated in reward processing (de Quervain et al., 2004).

Inside the laboratory, the question arises whether the behavioral options offered by the experimental design were suitable to fulfill participants' goals. The dependent variable, particularly in the current minimal group studies, might have been too abstract or temporarily too distal to be recognized as potentially goal-fulfilling. In most interpersonal triggered displaced aggression studies, the target of the aggressive behavior is believed to sit in an adjacent room and to receive the tormenting treatment online or within a couple of minutes. One exception is the recommendation for the applicant for paid assistantship (Bushman et al., 2005, study 1; Pedersen et al., 2000, study 1; Pedersen et al., in progress, study 3); aggression against her is not effective immediately. Still, having seen her on a video-tape makes the whole situation more palpable as compared with setting a dB level for a noise one has not heard oneself and without knowing when the outgroup members will be exposed to it. A further complication concerns the continued presence of the experimenter. Participants may have remained focused on the experimenter as the target of their aggression. The assumption, however, that triggered displaced aggression results from a priming effect, so that minor irritating incidences are more likely to be perceived or to be interpreted as provoking, does not change depending on whether the source of the original provocation remains present or not.

The specificity of anger's predictive power for outgroup derogation indicates that group-based emotions indeed serve a regulatory function for intergroup behavior. Anger was most strongly associated with explicitly negative treatment of the outgroup. Unexpectedly though, in Study 4, the post-hoc anger factor produced a 3 -1 -1 -1 contrast effect for the difference score of the dB level participants set for both minimal groups. This effect was driven by the dB level participants set for their ingroup, it thus represented ingroup favoritism. Preferential treatment of one's ingroup is no prototypical response to the experience of anger, but it is consistent with the view that aggression is not the only possible reaction to anger (e.g., Averill, 1983). The affective route to outgroup derogation need not be taken whenever group-based anger arises. People may engage in emotion regulation. One possibility to deal with an aversive group-based situation is to reduce identification with one's own social category and to discount the group's personal relevance. Discounting and reduction of identification was the preferred strategy pursued in Study 3 and was again employed in Study 4. In real life, psychologically distancing from the groups one belongs to

when high negative or low positive emotions are associated with the respective group memberships is presumably not as easily performed as from the minimal groups. The preferred strategy to deal with group-based anger is presumably conditional on a number of factors such as the centrality of the respective group membership or perceived ingroup strength (cf. Mackie et al., 2000).

Maximal differentiation in Study 4 could unequivocally be ascribed to preferential treatment of the ingroup, it was no instance of outgroup derogation. This result empirically illustrates the necessity to be cautious when interpreting maximal differentiating behavior, maximizing the difference between ingroup and outgroup does not necessarily equal negative treatment of the outgroup.

8.3 Future Research Objectives

Elicitation of negative affect and a dependent measure that is defined as explicitly harmful treatment is constrained by ethical concerns. Furthermore, outgroup derogation is a difficult subject of research because in principle explicitly negative treatment of other people is non-normative. While this latter point would suggest research with participants who do not know they take part in an experiment, this is of course not possible on ethical grounds. The ideal experiment would elicit genuine anger experiences and uncensored behavior.

One major caveat of the current studies pertains to the fact that only in Study 1 the experimental factors produced the expected effect for outgroup derogation. Most results base upon quasi-experimental factors. Therefore, it would be highly desirable to replicate triggered displaced outgroup derogation with the experimental factors provocation and trigger.

Many questions relating to explicitly negative treatment of outgroups remain unresolved. Research should systematically establish that ingroup favoritism and outgroup derogation result from different underlying processes. To begin with, additional empirical evidence for the affective route to outgroup derogation should be obtained. Further minimal group studies should explore, whether indeed discounting and reduction of identification constitute the preferred strategy when to social category one was assigned to is associated with negative affect or absence of positive affect. Critically, the operationalization in subsequent studies should ensure that participants did perceive the triggering manipulation. Otherwise, some uncertainty remains with regard to the interpretation of absence or presence of effects of the trigger manipulation. For the provocation conditions, it might be advisable to

refrain from utilizing highly aversive conditions since their termination might actually elicit positive affect. In principle, the advantage of written or programmed manipulations is that they can be applied in a completely standardized fashion. The advantage of personally applied manipulations, on the other hand, is their palpability. Interpersonal triggered displaced aggression researchers ingeniously combined both advantages by using videotapes and voice recordings, respectively (cf. Pedersen et al., 2000). If indeed no derogation of minimal outgroups could be established, it might be worthwhile to realize Tajfel and collaborators' original intention and successively enrich the intergroup situation. Thus, the necessary conditions for outgroup derogation would be detected.

The assessment of core affect might gain from a bogus pipeline. Making participants believe that their true affect is objectively measured might increase their attention to interoceptive sensations and thus promote the assessment of core affect arousal. On the other hand, a bogus pipeline bears the risk of promoting a highly analytic attitude. Participants may watch themselves carefully and as a consequence avert arousal- as well as rumination-based triggered displacement.

At the same time, actually measuring objective physiological data and holding them against the subjective self-report data might provide valuable insight. The debate about the underlying processes would profit, since the study frequently cited to substantiate that arousal dissipates after 5 to 10 minutes actually assessed self-reported anger (Fridhandler & Averill, 1982). So far, the relation between physiological arousal and the experienced arousal is not well understood. However, the same reservations brought forward with regard to the bogus pipeline pertain to assessment of physiology.

Once the affective route to outgroup derogation is firmly established, the scope of displaced outgroup derogation and potential moderators such as group status should be explored. Is it indeed the case that stereotypic beliefs and prejudiced attitudes predispose towards derogation of outgroups that provide minor irritating provocations? Would even a clenched fist function similarly as an initial provocation and bias subsequent perception and ultimately intergroup behavior?[37] The present thesis demonstrated that consideration of affect does contribute to the explanation of negative intergroup behavior. Therefore, further research endeavors should address the proposed mechanism.

[37] Thanks to Thomas Schubert for this intriguing suggestion.

8.4 Final Conclusions

Malcolm X envisioned the Black people in the United States of America, a discriminated group, taking action to ameliorate their ingroup's condition. Van Zomeren and collaborators (2004) suggest that group-based anger might indeed function as a driving force of collective action (see Mummendey et al., 1999, for results on the related emotion resentment). Yet, anger is inherently an emotion that directs the focus on harming someone else. It is conceivable that anger may sometimes be in the service of a superordinate goal (Denzler, 2006). Explicitly negative treatment of an outgroup may serve to restore justice as when a disadvantaged group takes collective action. The present thesis contributed empirical evidence that an affective route to outgroup derogation exists. Paralleling research on attitudes (Esses, Haddock, & Zanna, 1993; Stangor, Sullivan, & Ford, 1991), affect has been shown to predict negative intergroup behavior. The strongest and most consistent relation between outgroup derogation and emotions was demonstrated for anger. Although affect is in principle thought of as a temporary, a short-lived phenomenon, it can account for enduring intergroup conflicts. Anger can be maintained by means of rumination and can be consolidated by minor subsequent irritations. In addition, data suggest that single anger episodes may last longer than a day (Fridhandler & Averill, 1982).

Negative behavior in intergroup relations is a fact of human social life. The severe consequences of negative intergroup behavior call for intensified research activities despite the difficulties associated with this particular topic.

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SUMMARY

Outgroup derogation is explicitly negative treatment based on the target's membership in a particular social category. The present thesis addressed a mechanism potentially underlying outgroup derogation. Outgroup derogation is intergroup behavior, thus it does not bear on the target's individual characteristics or its individual behavior. At the same time, outgroup derogation can be performed by an aggressor who was not personally affected by the instigation of the aggressive behavior. Outgroup derogation covers a wide range of behaviors, extending from derisive remarks to genocide.

Group memberships may guide behavior towards other people as well as how one thinks and feels about them (Tajfel & Turner, 1979, 1986). Group memberships however only impact a person's feelings, cognitions, and behaviors, when the person identifies with the respective group. Identification with a group entails attachment to the group and emotional involvement in the group's concerns (Tajfel & Turner, 1979, 1986). Intergroup emotion theory (Smith, 1993, 1999) integrated the social identity approach (cf. Turner, 1999; social identity theory and self-categorization theory) with appraisal theories of emotion (Frijda, 1986; Roseman, 1984; Scherer, 1988; Smith & Ellsworth, 1985). Sufficiently identified group members are proposed to experience group-based emotions in situations with affective significance for the respective ingroup. Group-based emotions follow from an appraisal of events and situations in relation to the ingroup's needs and goals. Group-based emotions are proposed to serve a regulatory function for intergroup behavior, specific emotions are assumed and have been empirically shown to be associated with specific action tendencies (Mackie et al., 2000). The present thesis investigated the role of group-based anger for outgroup derogation.

Triggered displaced aggression theory provided the research paradigm for all four reported studies (Miller et al., 2003; Pedersen et al., 2000). Triggered displaced aggression denotes a phenomenon in that an initial comparatively strong provocation and a subsequent triggering provocation of minor intensity interact to produce a disproportionately aggressive response towards the target who delivered the triggering provocation. Triggered displaced outgroup derogation was expected to occur when a minor group-based provocation was experienced subsequent to an unrelated comparatively strong provocation. Whether the initial provocation was person-based or group-based was conceptually no substantial distinction. Trigger-elicited anger was expected to increase outgroup derogation, but only when

participants had previously experienced anger elicited by the initial provocation, not without a prior strong anger experience. To the extent that triggered displacement results from activation of particular cognitive representations (cf. Miller et al. 2003; Bushman et al., 2005), particular cognitive appraisals of the intergroup relation should also be subject to an interactive effect of provocation and trigger.

Four studies aimed at demonstrating triggered displaced outgroup derogation. The first two studies related to naturally occurring groups; they were conducted as paper-and-pencil questionnaire studies. Study 1 revealed triggered displaced derogation of the elderly, participants were members of the young generation. Outgroup derogation was significantly stronger in the provocation-trigger condition than in the other experimental conditions. Furthermore, the anger reaction to the initial provocation was demonstrated to moderate the effect of the affective reaction to the triggering provocation on outgroup derogation. When the anger reaction to the initial provocation was strong, trigger-elicited anger led to an increase in outgroup derogation, when the initial anger reaction was weak, trigger-elicited anger and outgroup derogation were unrelated. The same moderation effect could be shown for the criterion perceived threat.

In Study 2, trigger-elicited anger significantly predicted derogation of foreigners but the effect was not moderated by the affective reaction to the initial provocation. The interactive effect of provocation and trigger was found for perceived threat. More severe threat posed by foreigners was perceived in the provocation-trigger condition than in the other three conditions. For perceived threat the moderated effect of trigger-elicited anger was also found. Trigger-elicited anger significantly increased perceived threat when participants had experienced high anger after the provocation, no statistically significant association between trigger-elicited anger and perceived threat existed when anger after the provocation was low. The affective reaction to the initial provocation had been assessed as core affect (Russell, 2003).

The next two studies employed a minimal group paradigm (Tajfel et al., 1971). Minimal groups are devoid of any specification besides the feature on that the categorization is based. In contrast to naturally occurring groups, no preconceptions exist about particular minimal groups. Core affect measures were again used to assess the affective reaction to the initial provocation.

No outgroup derogation was observed in Study 3. The absence of harmful treatment directed at outgroup members is however coherent in light of the result for discounting. Participants with high core affect anger and high trigger-elicited anger distanced themselves significantly more strongly from the minimal group they had been categorized into than all other participants. In Study 4, the treatment of the outgroup relative to the treatment of the ingroup was significantly worse for participants with high core affect anger and high trigger-elicited anger than for all other participants. This effect was however driven by ingroup treatment, the treatment of the outgroup did not differ depending on how much anger participants experienced.

To my knowledge, the research presented in this thesis is the first to provide empirical evidence for triggered displacement of aggressive behavior on a group level. Group-based emotions and specifically group-based anger has been shown to predict outgroup derogation and the appraisals of the outgroup as threatening. Anger resulting from an unrelated episode moderated the functional link of group-based anger and outgroup derogation as well as the link of group-based anger and the threat appraisal. Accordingly, considering particular affect contributes to explanation of negative intergroup behavior.

ZUSAMMENFASSUNG

Fremdgruppenabwertung bezeichnet die explizit negative Behandlung von Zielpersonen auf Grundlage von deren Mitgliedschaft in einer bestimmten sozialen Kategorie. Die vorliegende Arbeit untersuchte einen Mechanismus, welcher als Fremdgruppenabwertung zu Grunde liegend angenommen wurde. Fremdgruppenabwertung ist Intergruppenverhalten, es basiert nicht auf individuellen Eigenschaften oder Verhaltensweisen der Zielperson. Gleichermaßen kann Fremdgruppenabwertung durch einen Aggressor erfolgen, welcher nicht persönlich von dem Auslöser des aggressiven Verhaltens betroffen war. Fremdgruppenabwertung umfasst eine breite Vielzahl von Verhaltensweisen, welche von spöttischen Bemerkungen bis zum Genozid reicht.

Gruppenmitgliedschaften können Verhalten gegenüber anderen Menschen sowie Gefühle und Kognitionen gegenüber diesen Menschen leiten (Tajfel & Turner, 1979, 1986). Gruppenmitgliedschaften sind jedoch nur dann für die Gefühle, Kognitionen und Verhaltensweisen einer Person relevant, wenn sich die Person mit der betreffenden Gruppe identifiziert. Identifikation mit einer Gruppe erzeugt Gefühle der Zugehörigkeit zu dieser Gruppe und emotionale Involviertheit in die Belange der Gruppe (Tajfel & Turner, 1979, 1986). Die Intergruppen-Emotionstheorie (Smith, 1993, 1999) integrierte den Ansatz der Sozialen Identität (s. Turner, 1999; Soziale Identitätstheorie und Selbstkategorisierungs-theorie) mit Bewertungstheorien der Emotion (Frijda, 1986; Roseman, 1984; Scherer, 1988; Smith & Ellsworth, 1985). Die Intergruppen-Emotionstheorie postuliert, dass hinreichend identifizierte Gruppenmitglieder gruppenbasierte Emotionen empfinden, sofern eine Situation für die jeweilige Eigengruppe emotional bedeutsam ist. Gruppenbasierte Emotionen resultieren aus der Bewertung von Ereignissen und Situationen im Hinblick auf ihre Bedeutung für die Bedürfnisse und Ziele der eigenen Gruppe. Weiter wird postuliert, dass gruppenbasierten Emotionen eine Regulationsfunktion für Intergruppenverhalten zukommt. Spezifische Emotionen sind mit spezifischen Verhaltenstendenzen verbunden. Die spezifischen Verhaltenskonsequenzen gruppenbasierter Emotionen konnten auch bereits empirisch gezeigt werden (Mackie et al., 2000). Die vorliegende Arbeit untersuchte die Rolle gruppenbasierten Ärgers für Fremdgruppenabwertung.

Das Untersuchungsparadigma aller vier berichteten Studien entstammt der „Triggered Displaced Aggression Theory“ (Miller et al., 2003; Pedersen et al., 2000). Triggered displaced aggression bezeichnet folgendes Phänomen: Eine initiale, vergleichsweise starke

Provokation und eine nachfolgende auslösende Provokation geringerer Intensität bringen interaktiv eine unverhältnismäßig aggressive Reaktion gegenüber der Person hervor, von welcher die auslösende Provokation ausging. Es wurde erwartet, dass eine ausgelöste (triggered) und verlagerte (displaced) Abwertung der Fremdgruppe aufträte, wenn eine geringfügige gruppenbasierte Provokation auf eine unzusammenhängende vergleichsweise starke Provokation folgte. Die Unterscheidung in person-basierte und gruppen-basierte Provokation ist für die auslösende, nicht aber für die starke, initiale Provokation konzeptuell von substantieller Bedeutung. Weiterhin wurde erwartet, dass durch die auslösende Provokation evozierter Ärger zu mehr Fremdgruppenabwertung führen würde, dies jedoch nur dann, wenn die Probanden zuvor Ärger empfunden hatten, welcher durch die initiale Provokation hervorgerufen wurde. Ohne vorheriges starkes Ärgererleben sollte der durch den Auslöser erzeugte Ärger zu keinem Anstieg an Fremdgruppenabwertung führen. In dem Maß, in welchem die ausgelöste Verlagerung aus der Aktivierung bestimmter kognitiver Repräsentationen resultiert (s. Miller et al., 2003; Bushman et al., 2005), sollten auch bestimmte kognitive Bewertungen der Intergruppenbeziehung einem Interaktionseffekt der initialen Provokation und des Auslösers unterliegen.

Vier Studien zielten darauf ab, ausgelöste Verlagerung von Fremdgruppenabwertung zu zeigen. Die beiden ersten Studien bezogen sich auf tatsächlich existierende Gruppen; sie wurden als Papier-und-Bleistift-Fragebogenstudien durchgeführt. Studie 1 zeigte ausgelöste verlagerte Abwertung von älteren Menschen, die Probanden gehörten der jungen Generation an. Fremdgruppenabwertung war in der Bedingung, in welcher Probanden mit beiden Provokationen konfrontiert wurden, signifikant stärker ausgeprägt als in den anderen Experimentalbedingungen. Zudem konnte gezeigt werden, dass die Ärgerreaktion auf die initiale Provokation den Effekt der affektiven Reaktion auf die auslösende Provokation auf Fremdgruppenabwertung moderiert. Gab es eine starke Ärgerreaktion auf die initiale Provokation, führte durch den Auslöser evozierter Ärger zu einem Anstieg von Fremdgruppenabwertung. War die Ärgerreaktion auf die initiale Provokation schwach, waren durch den Auslöser evozierter Ärger und Fremdgruppenabwertung unverbunden. Der selbe Moderationseffekt konnte für das Kriterium wahrgenommene Bedrohung gezeigt werden.

In Studie 2 sagte Auslöser-evozierter Ärger signifikant die Abwertung von Ausländern vorher. Hier war der Effekt nicht durch die affektive Reaktion auf die initiale Provokation moderiert. Der interaktive Effekt von Provokation und Auslöser trat für wahrgenommene Bedrohung auf. In der Provokation-Auslöser-Bedingung wurde stärkere

Bedrohung durch Ausländer wahrgenommen als in den anderen drei Bedingungen. Für wahrgenommene Bedrohung trat zudem der moderierte Effekt Auslöser-evozierten Ärgers auf. Bei Probanden, welche starken Ärger nach der Provokation empfunden hatten, führte Auslöser-evozierter Ärger zu einem signifikanten Anstieg wahrgenommener Bedrohung. Kein statistisch signifikanter Zusammenhang bestand zwischen Auslöser-evoziertem Ärger und wahrgenommener Bedrohung, wenn nach der Provokation nur geringer Ärger empfunden wurde. Die affektive Reaktion auf die initiale Provokation wurde als Grund-Affekt (core affect) gemessen (Russell, 2003).

Die nächsten beiden Studien setzen ein Minimales Gruppen-Paradigma (Tajfel et al., 1971) ein. Minimalen Gruppen fehlt jegliche Spezifikation über jenes Merkmal hinaus, auf dessen Grundlage die Gruppen gebildet werden. Im Gegensatz zu tatsächlich existierenden Gruppen bestehen für minimale Gruppen keine Voreinstellungen bei den Probanden. Grund-Affekt-Maße wurden erneut für die Erfassung der affektiven Reaktion auf die initiale Provokation eingesetzt.

Keinerlei Fremdgruppenabwertung wurde in Studie 3 beobachtet. Die Abwesenheit schädigenden Verhaltens gegen die Fremdgruppe ist jedoch stimmig angesichts der Ergebnisse für Entwertung der Kategorie. Probanden mit starkem Grund-Affekt-Ärger und starkem Auslöser-evozierten Ärger wiesen die minimale Gruppe signifikant stärker zurück als alle anderen Probanden. In Studie 4 war die Behandlung der Fremdgruppe relativ zu der Behandlung der Eigengruppe durch Probanden mit starkem Grund-Affekt-Ärger und starkem Auslöser-evozierten Ärger signifikant schlechter als durch alle anderen Probanden. Dieser Effekt war jedoch bedingt durch die Behandlung der Eigengruppe, die Behandlung der Fremdgruppe war nicht unterschiedlich in Abhängigkeit des erlebten Ärgers.

Meines Wissens stellt die vorliegende Arbeit den ersten empirischen Nachweis für ausgelöste Verlagerung aggressiven Verhaltens auf Gruppenebene dar. Es wurde gezeigt, dass gruppenbasierte Emotionen und im Besonderen gruppenbasierter Ärger Fremdgruppenabwertung und die Bewertung der Fremdgruppe als bedrohlich vorhersagt. Ärger, welcher durch eine unverbundene Episode hervorgerufen wurde, moderierte die funktionelle Verknüpfung von gruppenbasiertem Ärger und Fremdgruppenabwertung sowie die Verknüpfung von gruppenbasiertem Ärger und der Bedrohungseinschätzung. Die Berücksichtigung spezifischen Affekts trägt demnach zur Erklärung negativen Intergruppenverhaltens bei.

APPENDIX

Filler scale for the provoking conditions of Study 1

I already knew that the US-administration is carrying people off to torture-states.

I have seen the reports by the program ‘Monitor’.

I know descriptions from Europeans concerning arbitrariness of American authorities.

I know the provision of law concerning the treatment of suspected terrorists.

I cannot image that such things could happen here in Europe.

I have knowledge about the detention conditions at Guantanamo.

Filler scale for the non-provoking conditions of Study 1

I already knew that thousands of US-soldiers died in the course of the liberation of Europe.

I have seen TV programs on the occasion of the 60th anniversary of D-Day.

I know descriptions from war veterans about events at the front.

I know about the historical significance of June 6, 1944.

I cannot image what Europe would look like today without D-Day.

I have knowledge about the events on D-Day.

Verbal Core Affect Scale – English Version

I am feeling placid. (L)
I feel unhappy. (N)
I feel full of energy. (H)
I am in positive spirits. (P)
My internal engine is running slowly. (L)
My mood is bad. (N)
I am full of tension. (H)
I feel light-hearted. (P)
My mind is in a quiet state. (L)
I am distressed. (N)
I am feeling full of verve. (H)
Overall, I am satisfied. (P)

(L) = low arousal, reverse coded; (N) = negative; (H) = high arousal; (P) = positive, reverse coded

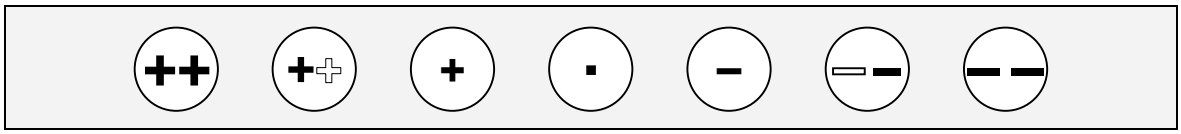
Verbal Core Affect Scale – German Version

Ich fühle mich gelassen. (L)
Ich fühle mich unglücklich. (N)
Ich fühle mich energiegeladen. (H)
Ich bin positiv gestimmt. (P)
Mein innerer Motor läuft langsam. (L)
Meine Laune ist schlecht. (N)
Ich bin voller Spannung. (H)
Ich fühle mich unbeschwert. (P)
Mein Geist ist in einem ruhigen Zustand. (L)
Ich bin bekümmert. (N)
Ich fühle mich schwungvoll. (H)
Insgesamt bin ich zufrieden. (P)

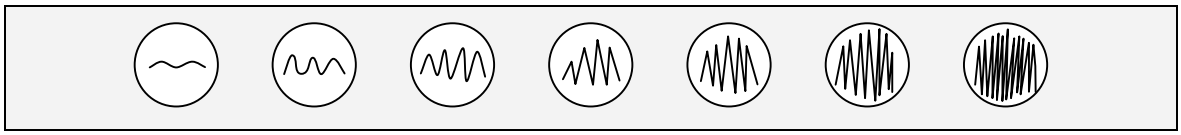
(L) = geringe Erregung, rekodiert; (N) = negativ; (H) = starke Erregung; (P) = positiv, rekodiert

Pictorial Core Affect Scale

Mark the circle that represents best your current feeling.
Markieren Sie diejenige Kugel, die Ihr augenblickliches Empfinden am besten ausdrückt.



Mark the circle that represents best your current state of arousal.
Markieren Sie die Kugel, die Ihren momentanen Erregungszustand am besten ausdrückt.



Cognitive Appraisal Scale of Studies 3 and 4

I liked the auditory stimulation. (reverse coded)

The auditory stimulation interfered with my concentration.

I found it hard to think with the background noise.

I experienced the auditory stimulation as pleasurable. (reverse coded)

EHRENWÖRTLICHE ERKLÄRUNG

Ich erkläre hiermit, dass mir die geltende Promotionsordnung der Fakultät für Sozial- und Verhaltenswissenschaften der Friedrich-Schiller-Universität Jena bekannt ist.

Ferner erkläre ich, dass ich die vorliegende Arbeit selbst und ohne unzulässige Hilfe Dritter angefertigt habe. Weder habe ich die Hilfe eines Promotionsberaters in Anspruch genommen, noch haben Dritte mittelbar oder unmittelbar geldwerte Leistungen für Arbeiten von mir erhalten, die im Zusammenhang mit dem Inhalt der vorgelegten Dissertation stehen. Alle von mir benutzten Hilfsmittel und Quellen sind in der Arbeit angegeben.

Sindy Wänke, Kathrin Häfner und Anna-Marie Manger haben mich bei der Gewinnung von Probanden und die beiden Erstgenannten zudem bei der Erhebung der Fragebogendaten für die Studie 1 und den ersten Vortest bzw. für Studie 2 unterstützt. Marko Peter Bergweiler fungierte in der vierten Studie als männlicher Versuchsleiter. Weitere Personen waren an der inhaltlich-materiellen Erstellung der Arbeit nicht beteiligt.

Die Dissertation wurde weder im In- noch im Ausland in gleicher oder ähnlicher Form als Prüfungsarbeit für eine staatliche oder andere wissenschaftliche Prüfung vorgelegt. Weder früher noch gegenwärtig habe ich an einer anderen Hochschule eine Dissertation eingereicht.

Ich versichere, dass ich nach bestem Gewissen die reine Wahrheit gesagt und nichts verschwiegen habe.

_____ _____

(Ort, Datum) (Unterschrift)